Exploring food system transformation in the greater Cape Town area

by

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Declaration

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Date: March 2018

Abstract

Globally, the food system is plagued by unsustainable food production practices and social injustices that render many of the world's population vulnerable to food insecurity. Fundamental re-organisation of the food system is key to provide the food insecure access to safe and nutritious food, and reduce the ecological impacts of food production. This entails deep systemic changes towards a more sustainable system, i.e. transformation. Transformation labs (T-labs) help prepare the system for change as specifically designed and facilitated processes that intervene and support multi-stakeholder groups in addressing complex social ecological system (SES) problems.

In November 2016, researchers from the Centre for Complex Systems in Transition (CST) in collaboration with the Southern African Food Lab (SAFL) conducted a T-lab process as an intervention in the local food system in the Western Cape. The process, built on principles of transformation and systems thinking, brought together a diverse group of actors that are actively engaged in creating alternatives in the food industry, such as restaurateurs and chefs, producers, informal food traders and academics, in an enabling environment for transformation processes through dialogue, activities and networking. This was an attempt to strengthen the alternative food system and enable it to become more mainstream or exert more influence in the dominant food system. The actors were provoked with realities of the dominant food system and faced with the challenge of envisioning a more sustainable and ideal food future, and what role they can play in bringing that future about. At the end of the T-lab process, actors agreed on several action points as improvements to their work or collaborations with each other.

The overall aim of this study is to determine the viability of the T-lab as a "safe enough" space for building relations and strengthening networks within the alternative food system, as a platform for transformative processes through dialogue and addressing the challenges that participants face. The study also tracked the impacts of this process on alternative food networks in the greater Cape Town area. These findings help to understand the effect of T-labs over the short-term and provide insights into a novel way of engaging with the complexity of the food system that results in action. The findings show that T-labs are evolving processes that require skilled facilitation, and can be suitable spaces for building trust and comradery, strengthening existing structures within a system, and as a platform for collaboration. T-labs also have the potential to set things in motion, i.e. prepare for change in a transformation process. However, T-labs alone cannot transform a system as complex as the food system, i.e. one that is characterised by uncertainty, surprise, multiple possible outcomes, and limited predictability. Recommendations for future studies include determining what other processes and activities can be carried out in conjunction with T-labs to serve collectively as an intervention in the food system of the Western Cape, and conducting T-lab processes with actors from large business, civil society, and actors from both the dominant and alternative food systems.

Opsomming

Wêreldwyd word die voedselstelsel deur onvolhoubare voedselproduksiepraktyke geteister, asook sosiale onregte wat baie van die wêreld se bevolking kwesbaar maak vir voedselonsekerheid. Fundamentele herorganisasie van die voedselsisteem is die ideale manier om voedselversekerde toegang tot veilige en voedsame kos te verskaf, en om die ekologiese impak van voedselproduksie te verminder. Dit behels diepgaande sistemiese veranderinge in die rigting van 'n meer volhoubare stelsel, in ander woorde, transformasie. Transformasie laboratoriums (T-labs) help om die stelsel vir verandering voor te berei as spesifiek ontwerpte en gefasiliteerde prosesse wat ingryp en van multi-belangegroepe ondersteun in die oplossing van komplekse sosiale ekologiese stelsel (SES) probleme.

In November 2016 het navorsers van die Sentrum vir Komplekse Stelsels in Oorgang (KST), in samewerking met die Suider-Afrikaanse Voedsellaboratorium (SAVL), 'n T-laboratoriumproses as 'n ingryping in die plaaslike voedselstelsel in die Wes-Kaap uitgevoer. Die proses is op transformasiebeginsels gebaseer. Sjefs, produsente, informele voedselhandelaars en akademici wat by die skep van alternatiewe in die voedselbedryf betrokke is, is bymekaar gebring om te netwerk. Dit was 'n poging om die alternatiewe voedselstelsel te versterk en in staat te stel om meer invloedryk in die oorheersende voedselsisteem te word. Die akteurs is gelok met realiteite van die oorheersende voedselsisteem, en gekonfronteer met die uitdaging om 'n meer volhoubare en ideale voedsel toekoms te vestig, en om uit te dink watter rol hulle kan speel om hierde toekoms te bereik. Aan die einde van die T-lab-proses, het akteurs ooreengekom op verskeie aksiepunte as verbeteringe vir hul werk of samewerking met mekaar.

Die oorhoofse doel van hierdie studie is om die lewensvatbaarheid van die T-laboratorium te bepaal as 'n veilige ruimte vir die bou van verhoudings, asook die versterking van netwerke binne die alternatiewe voedselstelsel, as 'n platform vir transformatiewe prosesse. Die studie het ook die impak van hierdie proses op alternatiewe voedselnetwerke in die groter Kaapstad-omgewing nagegaan. Hierdie bevindings help om die effek van T-laboratoriums op die korttermyn te verstaan en om insig in 'n nuwe manier van betrokkenheid by die kompleksiteit van die voedselstelsel wat tot aksie lei, te voorsien. Hierdie bevindinge toon dat T-labs ontwikkelende prosesse is wat vaardige fasilitering vereis en geskikte ruimtes kan wees om vertroue en kameraadwerk te bou, bestaande strukture binne 'n stelsel te versterk en as platform vir samewerking gebruik kan word. T-laboratoriums het ook die potensiaal om voorbereiding vir verandering in 'n transformasieproses in werking te stel. T-laboratoriums kan egter nie 'n stelsel so kompleks as die voedselstelsel transformeer nie, m.a.w. een wat deur onsekerheid, verrassing, veelvuldige moontlike uitkomste en beperkte voorspelbaarheid gekenmerk word. Aanbevelings vir toekomstige studies is insluitend van die bepaling van watter ander prosesse en aktiwiteite saam met T-laboratoriums uitgevoer kan word om gesamentlik as 'n ingryping in die voedselstelsel van die Wes-Kaap te dien. Dit sluit ook T-lab-prosesse met akteurs van groot besighede, burgerlike samelewing, en akteurs van beide die dominante en alternatiewe voedselstelsels in.

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List of Acronyms and Abbreviations

CAS	Complex Adaptive Systems
CFS	Committee on World Food Security
CPI	Consumer Price Index
CST	Centre for Complex Systems in Transition
ECD	Early Childhood Development
FAO	The Food and Agriculture Organization of the United Nations
FSC	Food Sovereignty Campaign
FSIN	The Food Security Information Network
GRAID	Guidance for Resilience in the Anthropocene: Investments for Development research project.
IFAD	The International Fund for Agricultural Development
LEK	Local Ecological Knowledge
MA	Millennium Ecosystem Assessment
MLP	Multi-level Perspective
NAMC	National Agricultural Marketing Council
NSNP	National School Nutrition Programme
SAFL	Southern Africa Food Lab
SAFSC	South African Food Sovereignty Campaign
SANHANES	South African National Health and Nutrition Examination Survey
SES	Social ecological system
SETs	Social-ecological transformations
SFYN	Slow Food Youth Network
SILG	Social Innovation Lab Guide
SRC	Stockholm Resilience Centre
T-lab	Transformation Lab
UNEP	The United Nations Environment Programme
WCG	Western Cape Government
WFP	World Food Programme
WHO	World Health Organization

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Chapter 1 – Introduction

1.1 Introduction

Globally, many countries remain food insecure and vulnerable to food insecurity despite increased production and availability of cheaper food (Ericksen et al. 2010, CFS 2017, FSIN 2017, Reed et al. 2017). The food system, - i.e. all activities, resources and actors engaged in the production, processing, transportation, consumption and disposal of food - is impacted by many ecologically unsustainable and socially unjust dynamics and food production practices that show undesirable consequences for people and the environment (Crutzen & Stoermer 2000, Steffen *et al.* 2015, Folke 2016, FAO, IPAD & WFP 2017 and Reed et al. 2017: 202). It is a complex social-ecological system (SES) with diverse actors and logistics that "spread across time and space" and exhibits behaviour typical of complex adaptive SES as it operates within, and is influenced by, social, political, economic and environmental contexts (May 2017, Pereira 2017, Reed et al. 2017).
For example, it is under pressure from factors such as climate change, increased demand due to increased population, and a globalised food market that can affect prices and access to food products (MacDonald et al. 2015, Gordon et al. 2017).

Locally, studies show that 11.8% of South African households are prone to experiencing hunger, while 22.3% of households have severely inadequate access to food (Statistics South Africa). Other reports estimate that 80% of all households are moderately or severely food insecure, or vulnerable to food insecurity (i.e. the African Food Security Urban Network 2008 report, and the South African National Health and Nutrition Examination Survey, SANHANES-1). Thus, as it is, the current food system does not deliver access to safe and nutritious food, especially to the food insecure, nor is it socially or ecologically sustainable (Pereira & Drimie 2016).

South Africa has 13% arable land, 3% of which is high-potential for agriculture (Mbhenganye 2016). Most of the food (up to 80%) that is produced in the 3% areas is sold to a few large corporations such as Tiger Brands, Pick n Pay and Shoprite Checkers (Pereira 2014, Battersby et al. 2016). Thus, there is "increased vertical integration" within the food system, with few large corporations controlling each aspect of the value chain, leaving little to no room for smallholders to compete (Battersby et al. 2016, Gordon et al. 2017, Reed et al. 2017). These and the large food service companies in South Africa (i.e. Famous Brands Ltd and Yum Brands Inc) make readily accessible relatively cheap foods that tend to be sugary, fatty and processed, resulting in undernutrition (inadequate intake of calories or nutrients) and/or overnutrition (excessive intake of calories) for many South Africans (Temple & Steyn 2009, Rehm *et al.* 2011, Pereira 2014, Faber & Drimie 2016). Malnutrition leads to an array of health conditions such as cardiovascular disease, diabetes, cancer, and obesity (Kolčić, 2012).

Food consumption thus determines the health state, wellbeing and social-economic development of many (Gordon et al. 2017). This renders global food security a multidimensional problem that will require multiple interventions at local and global scales (Reed et al. 2017).

This thesis presents a research project that is exploring ways of intervening in the current food system to enable transformation towards more sustainable trajectories for both people and the environment. The study tracks potential impacts emerging from a Transformation lab (T-lab) that was convened as a collaboration between the Centre for Complex Systems in Transition (CST) at Stellenbosch University, and the Southern Africa Food Lab (SAFL) under the Guidance for Resilience in the Anthropocene: Investments for Development (GRAID) research project.

The study contributes to a larger co-learning process involving dialogue and public engagement as an attempt to explore alternative food niches as the basis for food system transformation in the South African context. The approach is to use the T-lab as a tool of dealing with complex social ecological system (SES) challenges, specifically in the food system. The study has the characteristics of typical qualitative research, i.e. taking its departure point from the insider perspective on social action (Mouton & Babbie 2001), and includes the wider application of ideas from transformation theory and systems thinking.

1.2 Background

For the food system to depart from the current dynamics to a more socially and ecologically sustainable trajectory, there is a need for radical transformation (Bennett et al. 2016). Transformation is a process of creating systems change and occurs when existing ecological, social, economic or political conditions are no longer viable (Walker *et al*. 2004, Stirling 2014). This involves "defining and creating novel system configurations by introducing new components and ways of governing SES", i.e. changing core state variables and key cycles of a system (Olsson et al 2006: 2). For transformations to occur, they require multilevel and multiphase processes of action such as a combination of activities and innovations (Geels 2002, Westley et al. 2013). Transformation typically involves a diversity of nascent and disruptive political re-alignments, and social and technological innovations, done repeatedly over a period, with the focus of building human capacity to transition to the new system (Walker et al. 2004, Stirling 2014).

Transformation is a process with distinct phases: (1) preparing for change, (2) navigating the transition to new social contexts, and (3) building resilience of the new trajectory of development (Olsson et al. 2004, Olsson et al. 2006) as illustrated in the figure below. This is termed the "cup and ball" model and illustrates the different phases of transformation (Olsson et al. 2004, Folke et al. 2009).

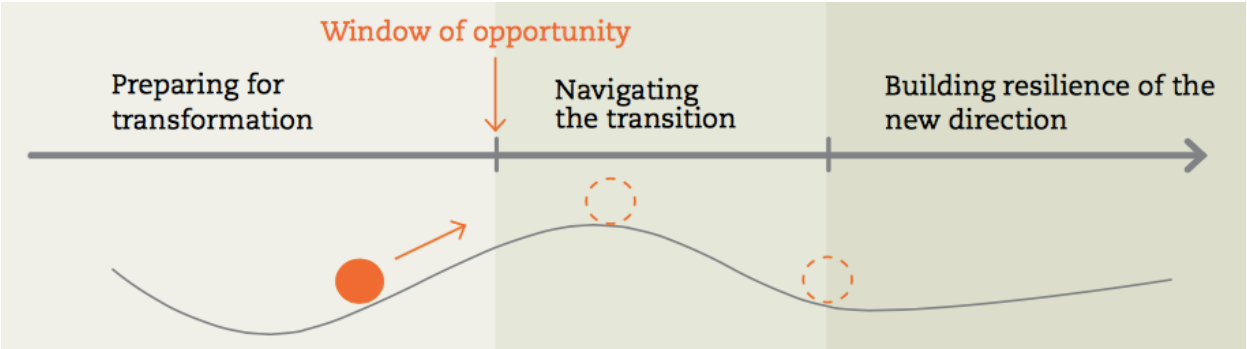

Figure 1: The different phases of transformation (Folke et al. 2009).

Preparing a system for change often involves building knowledge and creating social networks with individual nodes of expertise from various local groups and organisations, where diverse actors can engage with one another on principles of trust and dialogue (Olsson et al. 2004, 2006). This first step towards transformation relies heavily on human agency to shape the system.

Transformation labs (T-labs) build on the concepts of social innovation labs and bring together people from different sectors and backgrounds, with different perspectives, in a facilitated process where they can work together creatively and co-design novel solutions (i.e. social and technical innovations) that can be tested. Based on the awareness that society is on an unsustainable trajectory, T-labs are designed to seek transformation (not just innovation) in social-ecological systems, i.e. prepare the system for change. In this regard, T-labs are "a response to Anthropocene challenges", and in their role as niches, they gather momentum around new ideas towards alternative, positive versions of the Anthropocene (Pereira et al. forthcoming: 329).

Once there is a window of opportunity for change, accumulated social innovations from networks (i.e. T-labs) have a chance to become established in the system (Dorado 2005, Olsson et al. 2006). Windows of opportunity often occur when there is a crisis (anticipated or real) in the system, causing ripples or cracks therein that allow for institutional change (Geels 2002, Pereira et al. forthcoming). Social change and technical innovations or technical progress can thus be described as examples of "new thinking, new ways of living, and new ways of connecting people and nature" that seek to address global challenges and create a "just, prosperous, and ecologically sustainable world", i.e. a "Good Anthropocene" (Pereira et. al forthcoming: 328).

The third phase of the transformation process involves building resilience of the newly established innovations, to increase their capacity for dealing with change in the larger system, i.e. deepening people's motivation and values for the change, strengthening leadership and trust between actors involved in changing prevailing conditions, and establishing arenas for collaboration (Olsson et al. 2004, Olsson et al. 2006). Otherwise, it is very likely that the social and technical innovations introduced into the existing regime will lose their "innovative edge and potential for disruption" (Pereira et al. forthcoming).

1.3 Rationale for the Study

Disruptive and radical innovations have the potential to transform a system (Geels 2002, Westley 2013). Globally, the food industry is controlled by large scale actions in formal and informal markets, corporate lobbying, governmental policies, subsidies and trade agreements that influence availability, affordability, convenience, and desirability of various foods (Gordon et al. 2017: 3). This has streamlined diets and facilitated increasing consumption of saturated fats, red meats and empty carbohydrates (Tilman & Clark 2014, Gordon et al. 2017). The consumer has very little to say on what food choices are available to them, how the food is produced, and under what conditions (Halweil 2002, Dubuisson-Quellier *et al.* 2011, Gordon et al. 2017).

In the South African context, where the current food system is rendering many hungry and food insecure (Faber & Drimie 2016), an alternative food niche has the potential to contribute to transforming the way food is produced, processed, consumed and distributed (Barber 2014). To maximize this potential to create new food trajectories, certain conditions and relationships need to be nurtured, including the relationships between the farmer and the processor, processor and retailer, consumer and farmer, consumer and food itself (Pollan 2013, Barber 2014, and Pereira 2015).

By linking alternative food actors and strengthening their network, the T-lab aims to create bridges, by for example, linking chefs to producers, restaurateurs to informal traders and academics to actual work on the ground. The T-lab also aims to serve as a platform for transformative processes which can result in the local alternative food system (i.e. the Western Cape) becoming more mainstream or exerting more influence in the dominant food system at national level. This can be done through dialogue and coming up with solutions to the challenges participants face, thereby strengthening them and enabling them to navigate them as best as possible (Westley et al. 2013, Ely & Marin 2017).

Until recently, these kinds of labs based on principles of transformation and systems thinking have only been implemented in Western and European contexts. This project between Stellenbosch University and the Stockholm Resilience Centre seeks to implement these processes in a global southern context within the food system of the Western Cape. Thus, both the T-lab and the ensuing research are experimental in nature, rendering the study crucial to provide insights into conducting such processes, especially within the local context. This study is therefore two-fold, to validate and test T-lab processes within the local context, and to provide a "concrete reference point for testing the implications and validity of ideas created during the learning process" (Kolb 2014: 32).

1.4 Problem Statement

The current food system needs to be transformed to meet the needs of the food insecure and be socially and ecologically sustainable and resilient.
This study explores whether T-labs are a viable approach for introducing disruptive and radical innovations that have the potential to transform the food system, i.e. the way food is produced, processed, consumed and distributed (Geels 2002, Westley 2013, Pereira & Drimie 2016, Ely & Marin 2017).

1.5 Research Questions and Objectives

The research questions if and how transformative spaces such as a T-lab can serve as a tool for transformation in the food system. The research process also examines how the impacts of such transformative spaces can be nurtured to effect long lasting change in the food system. The following two questions therefore guide the study:

1. Can a T-lab serve as an intervention for food system transformation in the South African context?
2. How can a process like a T-lab be nurtured to create new food trajectories through its impacts on participating niche actors?

By answering the above research questions, the exploratory study aims to fulfil the following objectives:

1. To determine the viability of a T-lab as a safe space or intervention in the food system, i.e. whether it can build relations and strengthen the networks within the alternative food system, and serve as a platform for transformative processes through dialogue and coming up with solutions to the challenges participants face.
2. To track the impacts of networking in an alternative food industry in the Western Cape, specifically the Stellenbosch and Cape Town area.
3. To determine the durability of start-up alternative food initiatives arising from the T-lab.

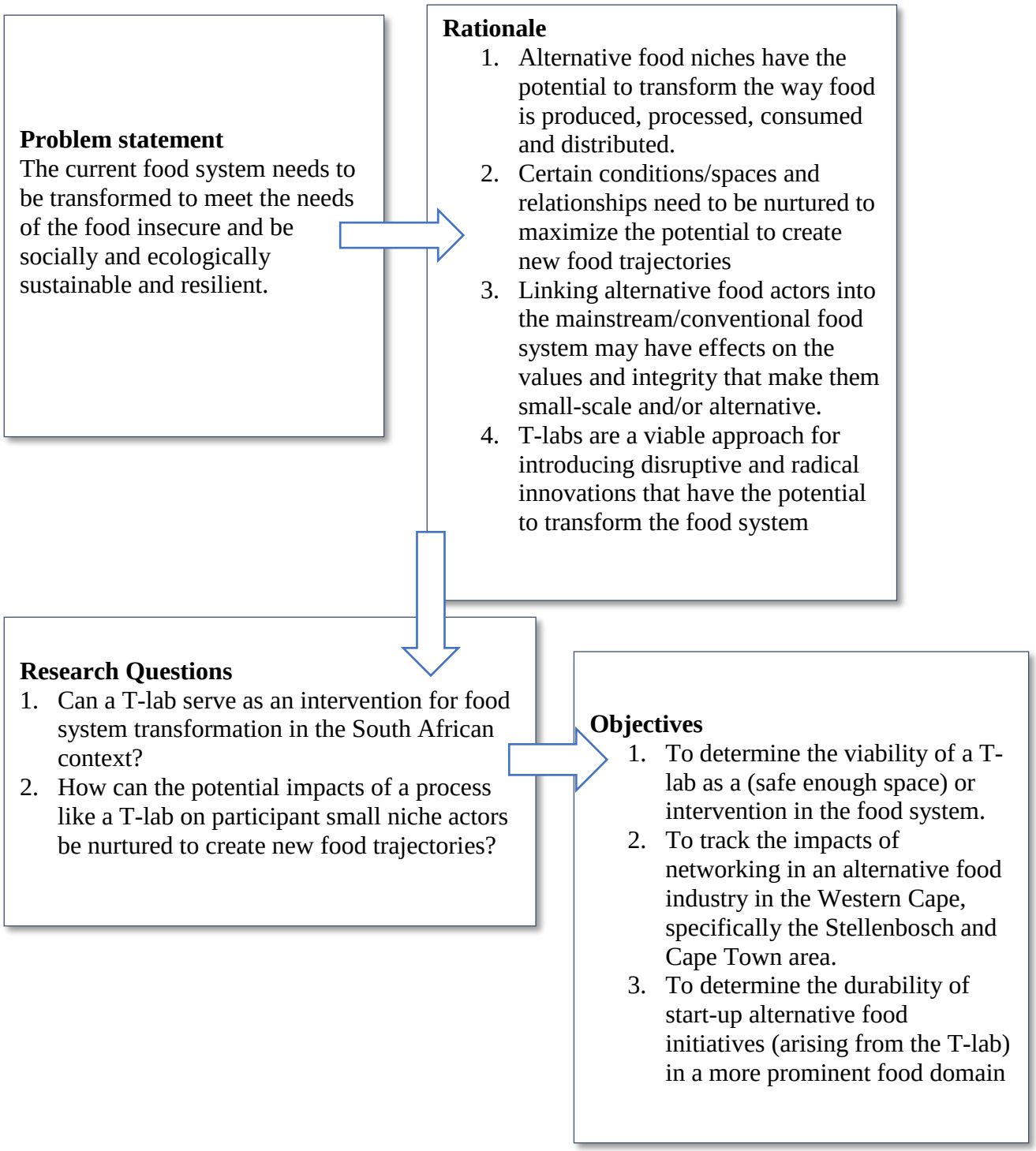

Figure 2: Research problem statement and objectives

1.6 Definition of key terms and concepts

Some of the key terms used in the thesis include transformation, transformative spaces, complex adaptive system (CAS), social ecological system (SES), food system, alternative food system and Transformation labs (T-labs).

1. Transformation

Transformation refers to processes of "deep systemic changes" towards more sustainable trajectories when existing ecological, social, economic or political conditions are no longer viable (Walker et al. 2004, Olsson & Galaz 2012, Stirling 2014, Folke 2016, Ely & Marin 2017). They are human-induced changes that aim to improve social-ecological conditions, and often they involve collaboration and participatory engagement, policy and institutional rearrangements and entrepreneurial innovation (Armitage, Charles & Berkes 2017).

2. Transformative, safe and "safe enough" spaces

These are spaces in which diverse actors (such as researchers and practitioners) can converge and "freely think without the weight of a disciplinary history or institutional commitments to a given approach that may constrain dialogue, co-create and prepare innovative ideas and interventions" (Pereira et al. 2015: 6035). Safe spaces are protective spaces for emerging, path-breaking innovation (Smith & Raven 2012). These spaces enable the actors to learn innovative ways of living and working through sharing of experiences, discussion and planned activities (Olsson et al. 2006, Ely & Marin 2017). However, in the context of T-labs, there is often a level of discomfort for participants involved in these spaces and so in this study, the term "safe enough" has been adopted to encapsulate that whilst there is a level of openness and trust, it is not always a comfortable space.

In the thesis, all three terms, i.e. transformative space, safe space and "safe enough" space have been employed to refer to transformation labs (T-labs) at different stages of the process. Initially, the T-lab is a transformative space in that it is a platform where the diverse actors are converging to address a complex problem in the food space. Then, there are aspects of the T-lab that function to create a safe space by shielding, nurturing and empowering emerging innovations from pressures that may stop them from getting established in the dominant system (Geels 2002, Smith & Raven 2012). The term "safe enough" is used to describe the T-lab overall- and is linked directly to the idea of a transformative space being a 'safe enough' space, i.e. when it tries to create a potentially transformative platform for building relations and strengthening the networks within the alternative food system, in the face of difficult issues that create discomfort amongst participants.

3. Transformation labs

As transformative spaces, transformation labs (T-labs) seek for transformation and innovation in social ecological systems (SES). They are spaces for facilitated, collective learning about the nature of a problem or challenge; learning about different kinds of possible solutions, or pathways of possible change; helping to create a collective sense of the need for change – within and beyond the stakeholders directly involved; identifying strategies for affecting change; and identifying which actors have transformative power (adapted from unpublished T-lab report).

4. Complex adaptive system (CAS)

Complex systems are open systems with many (often simple) components – they have rich and non-linear interactions with their environment with which they exchange

energy or information (Cilliers 2000). CAS also have memory distributed throughout the system and have the capacity to self-organise and adapt based on its history and future projections (Biggs et al. 2015). Complex adaptive systems are also associated with uncertainty, potential for non-linear change, and complex social, ecological and social-ecological dynamics (Schill 2017).

5. Social ecological system (SES)

A social-ecological system (SES) is an "ecological system intricately linked with and affected by one or more social systems" (Anderies *et al.* 2004). SES have inherent social, ecological, and social-ecological properties, i.e. they are more than the sum of the social and ecological systems (Schill 2017). They have an interdependency and feedback loops between them that exhibit emergent properties (Folke 2016), and are composed of "multiple subsystems and internal variables within these subsystems at multiple levels analogous to organisms" (Ostrom 2009: 419). SES are inherently complex adaptive systems - CAS (Folke 2016).

6. Food system

In this thesis the food system is described as a complex system that has an interdependency and feedback loops between its social and ecological components; i.e. between those that grow, process, distribute, acquire, consume and dispose of food (Reed et al. 2017). The food system exhibits behaviour typical of complex adaptive SES system, i.e. it has the capacity to self-organise, potential for non-linear change, and is associated with substantial uncertainties (Folke 2016, May 2017, Schill 2017).

7. Alternative food system networks and actors

An alternative food system can be referred to as a system that deviates from the dominant food production practices of the current food system. This system supports producing and consuming local, i.e. shorter distance between producer and consumer, and accountable relationships between the two on practices and methods of production (Holloway *et al.* 2004, Dubuisson- Quellier *et al.* 2011). Thus, the alternative food network is "reconfiguring an expanding subset of production-consumption relations" and is commodifying nature in more sustainable ways (Goodman 2009: 2).
Alternative food system networks are proponents for concepts such as "nose to tail eating" or "sustainable cooking" that refers to the practice of eating all parts of the animal, not merely the choice or coveted parts (Barber 2015). Such approaches to food and cooking advocates for efficiency, rather than putting to waste edible food due to aesthetic or preference reasons.

1.7 Overarching Research Approach and Strategy

The research project focuses on a T-lab held in November of 2016. Here, various actors engaged in creating alternatives in the South African (specifically the Western Cape) food industry converged, with the T-lab serving as a platform for dialogue and knowledge sharing. The aim of the T-lab was to stimulate innovation that can combat some of the challenges within the Western Cape and broader South African food system. The T-lab provoked participants with challenges of the dominant food system

and how they, as alternative food system actors, have a vital role to play in transforming the system.

Over the subsequent months, the study then followed up with the participants of this process, and tracked some of the innovations emanating from the T-lab. The data collected was used to determine the use of T-labs as a viable intervention of addressing complex challenges faced in the food system.

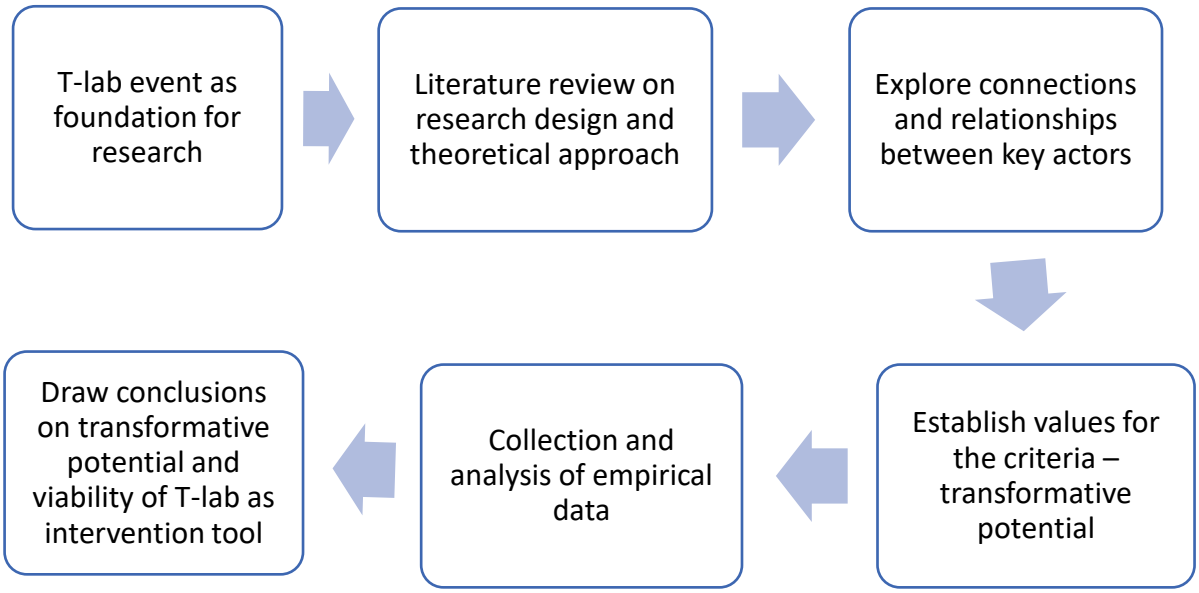

Figure 3: Process of the research study

1.8 Limitations of the study

There are several limitations to the study. T-labs themselves are experimental processes that are still being developed and adapted, especially in the Global Southern context (Pereira 2017). As such, the results may not hold in other areas with dissimilar demographics.

The study also assumes that participation in a T-lab will set in motion something that a research process can track afterwards. However, there is no guarantee that anything worth tracking will emerge from the T-lab. If trackable outcomes do arise, there may be substantial lags in picking up systemic transformative change. Change often takes time to culminate, especially when there is resistance from a more dominant system. The duration of a Master's degree is typically too short to track significant transformative changes. In addition, the food system is a “highly complex system with many interdependencies, nonlinear feedbacks, and uncertainties” (Pereira and Drimie 2016: 18) and it may be difficult to navigate, or distinguish effects of the T-lab from other causes.

The study assumes that identified participants are willing to interact with researchers in dialogue, a second T-lab, or give consent to be observed over a period following the initial T-lab. This is crucial as the research is largely based on narrative collection and requires the food actors’ participation. In addition, although narrative analysis

allows for deeper contextual understanding of a problem and can help answer questions of why and how (Swanepoel 2016), by adopting "rigor" as an attempt to refine the research process, there is a risk of leaving out vital information (Baxter & Eyles, 1997).

1.9 Chapter Outline

This first chapter introduces the research project. It gives the context and an overarching view of the research aim, objectives and approach of the study. It also highlights some of the limitations to undertaking the study.

The second chapter explores the theoretical framework informing the research process. The third chapter highlights the methods that were used during a case study that illustrates how the theory was applied to conduct a T-lab process. The fourth chapter reflects on the methodologies applied before, during and after the T-lab process, and presents the findings of the collected data.

Finally, chapter five is a concluding chapter. It is a discussion of the overall findings of the study linked to the research objectives, and makes recommendations for further study based on some of the limitations incurred during the research process.

1.10 Conclusions

This study aims to explore the potential of T-labs to serve as a tool for food system transformation in the Western Cape area. To do this, the study follows up on participants of a T-lab process that was conducted in November 2016, and tracks of some of the developments that emerged from the T-lab. More broadly, the study is an attempt to fill a knowledge gap on sustainable transitions within the global southern context, especially within the food system. The study also highlights some of the impacts of conducting a transdisciplinary research project with grassroots actors in the food system.

Chapter 2 – Transformation in the Food System

2.1 Introduction

The Anthropocene is a new geological era in the history of the Earth in which humans are the dominant drivers of change to the Earth system (Crutzen & Stoermer 2000, Steffen *et al.* 2015, and Folke 2016). This epoch, though still unfolding, is unlike the stable and known conditions of the Holocene that humanity existed in for the past 11,700 years (Crutzen 2002, Steffen *et al.* 2015). This is causing concern that the Anthropocene epoch might not be as accommodating to human development as the Holocene (Crutzen & Stoermer 2000, Crutzen 2002, IPCC 2014).

Human action has caused irreversible changes in biospheric processes from genetic levels to global scales that are substantially challenging our wellbeing and impacting natural processes (Olsson et al. 2004, MA 2005, Steffen *et al.* 2011, and IPCC 2014). Food systems are central to these changes (MA 2005). Agriculture is the world's largest driver of environmental change and a leading factor in the substantial increase in biogeochemical flows of Phosphorus and Nitrogen, loss of genetic biodiversity, land system changes, compromised biosphere integrity, and climatic changes (Crutzen 2002, Steffen *et al.* 2015, and Rockström *et al.* 2017). In turn, rapid climate changes are causing extreme and frequent weather events, heat waves, sea-level rises and droughts that threaten food security – i.e. productivity of crops, livestock and fisheries (FAO, IFAD & WFP 2015, Rockström *et al.* 2017).
For example, 33% of soils are highly degraded, 61-90% of fish supplies overfished, and 20% of the world's aquifers overexploited, thus undermining the livelihoods of over 250 million people and further putting at risk food (i.e. protein) sources for over one billion people (UNEP 2016, Rockström & Sukhdev 2017). A total of 40% of global land surface is currently being used to grow food, and this is projected to go up to 70% with the population growth (and additional calories that are needed) by 2050. Within the food system, many unsustainable social, ecological and economic dynamics are evident, with undesirable consequences for people and the environment (Pereira 2015, Drimie & Pereira 2016, Rockström *et al.* 2017).

This chapter provides a theoretical framework that informs our understanding of transformative spaces, and illustrates how these spaces can be used as a tool to foster transformation of the food system given the challenges posed by the Anthropocene. A brief introduction to the food system challenges in the global and South African context is given, before introducing concepts of transformation and transformative spaces. Then, the chapter explores the function that these transformative spaces play, and concludes with how the concept of transformation can be applied in the South African food system.

2.2 Sustainability challenges in the global food system

"Corn is what feeds the steer that becomes the steak. Corn feeds the chicken and the pig, the turkey and the lamb, the catfish and the tilapia and, increasingly, even the salmon…a carnivore. (Even) the eggs are made of corn."

Michael Pollan (2006: 18)

With the rise of modern industrialised societies, almost all countries rely on trade to fulfil their food and agricultural product requirements (Soskice & Hall 2001, Gordon et al. 2017). Countries grow what they can grow well, export their surplus (or what they grow well), and import what they cannot grow well, or what is out of season for them (Halweil 2002, Reed et al. 2017). This concept, called "comparative economic advantage", has promoted the availability of cheap, similar food globally, all year round as countries reduce production costs when they specialize and become more efficient (Soskice & Hall 2001, Halweil 2002, Hawkes 2006, MacDonald *et al.* 2015, Gordon et al. 2017).

Comparative advantage does not promote local food production and consumption (Pereira & Drimie 2016, Benton 2017). Instead, it displaces local cuisines, varieties, and agriculture, and robs consumers of the pleasures of face-to-face interactions around food and knowing what they are eating (Halweil 2002). This disconnect also denies consumers the ability to make informed decisions and negotiate with producers on some of the specific characteristics of products or of production (Dubuisson-Quellier *et al.* 2011) – since the food is produced thousands of kilometres away from where it is consumed, under unknown conditions, it is not easy for consumers to interact with producers/production methods.

Comparative advantage has promoted a longer food value chain, including mass food production and a much-commercialized agriculture sector (May 2017). Transportation subsidies, cheap fuels and advances in technology have allowed longer storage times and transport over longer distance, with lower shipping costs (Gordon et al. 2017). For example, in the United States, food typically travels between 2500 and 4000 km from farm to plate, in the United Kingdom food now travels 50 percent further than it did two decades ago (Halweil, 2002, Benton 2017). Neither the farmer, consumer, nor supermarket are directly paying for the cost of car fumes, smog, and burning of fossil fuels to manufacture fertiliser, with the result that food is artificially cheap and efficient (Crutzen 2002, FAO, IFAD & WFP 2015 and Rockström *et al.* 2017). In addition, products that undergo long transport and storage times depend on preservatives and additives, and encounter many opportunities for contamination on their long journey from farm to plate (Halweil, 2002) - consumption of which can be harmful to the human body. Although over the last fifty years there have been improvements in food handling over the chain supply leading to reduced outbreaks of foodborne diseases (Gordon et al. 2017), 420 000 people still die every year from consuming unsafe food (WHO 2015).

The agricultural sector is currently dominated by a few "unpeopled yet powerful transnational corporations" that are in control of production, distribution, processing and marketing of food and subsequent products (Hinrichs 2000: 295). This concentration of power favours those that are in control, and "fosters knowledge that emphasizes associated fallacies of control" (Stirling 2014: 14) – i.e. an iterative process where the powerful few operate in a system that they design and control themselves and are guaranteed to thrive in (May 2017). This global dynamic can also be seen in the South African food industry where there is a lack of transparency and a few corporate companies dominate availability and access of food, and the fate of food prices (Drimie & Pereira 2016, Ledger 2016).

In addition to power distribution, comparative advantage has affected the quality and quantity of food that is available worldwide. Although there has been an increase in food production and number of calories available for the population compared to the 1950's (Gordon et al. 2017), over 50 % of the world's daily protein and calorie intake comes from only three crops – wheat, maize (corn) and rice (Jaenicke & Höschle-Zeledon 2006, FAO, IFAD & WFP 2015). Pollan's quote above illustrates how thoroughly corn has come to dominate the food scene. For example, in American supermarkets, more than a quarter of the 45,000-odd items contain corn (Pollan 2006). In addition, globally, the supply of fruit and vegetables per person is insufficient (Gordon et al. 2017).

Agro-biodiversity is essential for both food security and nutrition (FAO, IFAD & WFP 2017) - something that three crops cannot provide. A direct consequence of this overdependence on very few crop species is malnutrition and hunger, and lack of dietary diversity, especially in developing countries or cases where the dominant crops (wheat, maize and rice) are unavailable (Jaenicke & Höschle-Zeledon 2006, Bharucha & Pretty 2010). Farmers that export their produce often go hungry as they devote their land to feed foreign mouths, and the poor urban dwellers often lack access to affordable healthy food choices (Halweil 2002). Wheat, maize and rice are high-yielding crops, but are less nutrient dense than other cereals such as barley, oats, rye, millet and sorghum that are yield less, but are also produced less (Gordon et al. 2017).

Despite edible indigenous and local foods growing in many landscapes and being easily accessible, many people are unaware of their nutritional value or are unwilling to include them in their diets (Hernandez-Morcillo *et al.* 2014). This is partly because there is a poverty or "rural" stigma that is attached to people who eat, grow or forage for these local delicacies (Mbhenyane 2016). Over time, this stigmatisation becomes a norm and the knowledge of which plants are edible, and their methods of preparation are not passed on to younger generations (Hernandez-Morcillo *et al.* 2014). This loss of local ecological knowledge (LEK) and traditional ways of life, and the stigma attached to them prevents many people (especially those in urban areas) from consuming or cultivating indigenous foods, and their potential remains underutilised (Bharucha & Pretty 2010, Hernandez-Morcillo *et al.* 2014, Mbhenyane 2016). This is especially common in areas of rural-urban migration and rapid urbanisation (Bharucha & Pretty 2010).

The concentrated mass production of only three crops (wheat, maize, rice) also has adverse environmental and health implications as planting the same crops year after year leaches soil of its nutrients, and soils must be replenished by chemical fertilisers (made of fossil fuels) (Smil 2001). Excess fertiliser runoff pollutes soils and water, altering the planet's composition of species and shrinking its biodiversity. When fertilizers are applied improperly, they are not absorbed by the plants, and the excess evaporates into the air and acidifies the rain, contributing to global warming (Crutzen 2002, Rockström *et al.* 2017). Furthermore, some fertilisers seep down to the water table and into drinking water sources such as tap water. Such water can cause disease and even death, especially of infants, as the nitrates in water get converted to nitrite, which binds to haemoglobin and compromises the bloods' ability to oxygenate the brain (Kimbrell 2002, Smil 2001).

2.3 The South African food system

The challenges facing the global food system are also prevalent on many local food scenes, including South Africa. Similar to the global food system, the country is prone to food insecurity, food-related non-communicable diseases, and a food system that is dominated by a few powerful players.

Food (in)security

The Committee on World Food Security (CFS 2012) defines food security as the condition that exists "when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and preferences for an active and healthy life". Each dimension of food security (i.e. availability, access, utilisation and stability) is vital (May 2017), because:

1. Availability of food does not imply that all people have access to it
2. Access to food does not equal the opportunity to use it
3. Utilisation of available, accessible food is not an indicator of a steady supply of food

South Africa has a high per capita income for a developing country, is food secure at the national level, has a constitutional right to food, and is a large exporter of grains, livestock, stone fruit and wine (De Klerk *et al.* 2004, Drimie & Ruysenaar 2010, Mclaren, Moyo, & Jeffery, 2015). However, South Africa is plagued by social, economic and ecologically unsustainable food practices that render 23-30% of the population with severely inadequate access to food or at risk of hunger (Ledger 2016, Mbhenyane 2016, and General Household Survey 2016). Although generally South Africans are less hungry than they were 13 years ago, the South African National Health and Nutrition Examination Survey estimates that about 30 million of the 55 million South Africans (about 80% of total population) are vulnerable to food insecurity (Shishana, et al. 2014). Despite such high statistics for a nationally food secure and economically viable country, the South African government has not clearly defined the terms "hunger" and "food insecurity" (Ledger, 2016). Social grants, the National School Nutrition Programme (NSNP), and lowering the price of some fruit, vegetables and bread in 2017 (Consumer Price Index – August 2017) are some of the strategies government employs. However, government initiatives targeting food security focus on agriculture and productivity, not the root causes of hunger, poverty and inequality (De Klerk *et al.* 2004).

Access and availability

Conditions such as prevalence of poverty, conflict, inequalities, drought, floods, loss of income, and financial stress on the family, affect the way a household has access to food (Ledger 2016, CFS 2017). This suggests that hunger and/or food (in)security are not fixed realities but are often unpredictable for many South Africans (Ledger 2016, Mbhenyane 2016, May 2017).

Food security in both urban and rural South African households is largely dependent on cash incomes (Faber & Drimie 2016). Many urban households do not (or cannot) grow their own food, and rely on local supermarkets or chain stores to purchase the food they consume (Battersby-Lennard & Haysom 2012, Faber & Drimie 2016). A

food basket was valued at R602.45 as of May 2016, or 35-40% of total income earned for low income households (National Agricultural Marketing Council - NAMC). That there are more hungry people in urban areas, but a higher percentage of food insecure people in rural areas is therefore not surprising (Ledger 2016). With other pressing needs such as shelter, water, electricity, and transport to and from work and school, many simply cannot afford to spend 40% of their wages on food (Ledger 2016). Instead, they resort to the cheapest, most affordable options: energy-dense diets that contain higher quantities of refined cereals, sugar and fat, but little to no nutritionally-dense foods such as lean meats, fish, vegetables and fruit (Temple & Steyn 2009, Rehm *et al.* 2011, Pereira 2014, Faber & Drimie 2016, Mbhenyane 2016).

To understand how to effect change in the food system to enable the food insecure access to safe and nutritious food requires an understanding of what the food system is, how it functions, and the properties that it exhibits. The food system is a typical example of a complex adaptive social-ecological system. The properties of these systems are discussed in the next section.

2.4 The food system as a complex adaptive system (CAS)

Social-ecological systems (SES) have inherent social, ecological, and social-ecological properties, and are more than the sum of social and ecological systems (Sobal *et al.* 1998, Anderies *et al.* 2004, Ericksen 2008, Schill 2017). They have an interdependency and feedback between the social and ecological components, and exhibit emergent properties that cannot be predicted from the nature of the parts (Ostrom 2009:419, Folke 2016). SES are complex adaptive systems (CAS) (Folke 2016), with the capacity to self-organise, potential for non-linear change, and are associated with substantial uncertainties (Cilliers 2000, Biggs *et al.* 2012, Folke 2016, Schill 2017).

The food system exhibits behaviour typical of complex adaptive SES (May 2017). For example, the challenges that the South African food system is facing, such as hunger and malnutrition, persist due to "complex and interrelated… environmental, health, economic, socio-political and agro-food issues", including increasing unemployment, food price volatility, HIV and AIDS, drought conditions and major trading partners, a decrease in government support for agriculture, and persistent high levels of urban and rural poverty (Drimie & McLachlan 2013: 218). In short, the food system is characterized by "wicked problems" (May 2017).

"Wicked problems" are problems that have (among other properties) no definitive formulation, no end to being resolved, only good/bad solutions rather than right/wrong solutions, and are always unique (Rittel &Webber 1973: 155-169). Wicked problems are inherently complex challenges that have multiple causes (May 2017). The solving of one problem leads to the creation of another problem, and so on – so that they are not actually solvable (Rittel & Webber 1973). The dynamics or causes of the problem keeps changing, so that if you resolve one aspect of the problem, it may no longer be applicable as a "solution" because the problem would have changed (Rittel & Webber 1973, May 2017).

Such complexity in the food system has accelerated the need for transformation towards more sustainable social-ecological pathways in creative ways (Pereira & Drimie 2016). Transformative change goes beyond incremental improvements and seeks to shift towards more resilient, sustainable and just societies (Avelino *et al.*, 2015). This stems from a recognition that exponential growth cannot continue in a world with finite resources as many of them are getting depleted at alarming rates, and/or becoming extinct (Rockström *et al.* 2009, Rockström *et al.* 2017).
These changes include harnessing innovative alternatives with the potential of reorienting food systems towards a functioning, healthy environment which can lessen the burden of diseases, increase income, life expectancy and quality of life (Galaz *et al.* 2008, Casale *et al.* 2010, and Rockström *et al.* 2017).

2.5 Transformation in SES

For the food system to depart from the current dynamic to a more socially and ecologically sustainable trajectory, there is need for systemic transformation (Bennett et al. 2016, Pereira & Drimie 2016). Transformations are "processes of deep systemic change", or transitions towards more sustainable pathways (Olsson & Galaz 2012, Ely & Marin 2017). Transformability of SES, or transformation, is the process of creating systems change when existing ecological, social, economic or political conditions are no longer viable (Walker *et al.* 2004, Stirling 2014 and Folke 2016). This includes the ability to cross thresholds and move SES into new basins of attractions, into new, emergent, and often unknown development trajectories (Folke 2016: 9). Disruptive and radical innovations have the potential to transform a system (Westley 2013). A transformation of the food system would require human-induced, systemic changes in the way that food is produced, processed, distributed, consumed, and disposed of, possibly triggered by a set of disruptive innovations. Reinvigorating the use of indigenous foods, urban food gardens and sourcing locally can be viewed as innovative attempts to shift the food and agrarian systems towards more sustainable, nutritious and equitable trends (Drimie & Pereira, 2016).

This thesis specifically focuses on human- induced type of transformations, which entail "…plural, emergent and unruly political re-alignments, involving social and technological innovations driven by diversely incommensurable knowledge, challenging incumbent structures and pursuing contending (even unknown) ends" (Stirling, 2014: 1). Human-induced transformations (social, ecological, economic, technical or political transformations), depend on repeated, collective action (Olsson & Galaz 2012). Although individual effort towards transformation is vital, collective action is more likely to aid shifts in institutional underpinnings such as mental models, management routines, and resource flows (Westley *et al.* 2013). This poses a challenge as human behaviour and/or action (individual and collective), is complex and dependent on many factors i.e. biological, genetic, social, environmental and cognitive (Schill 2017). Consequently, transformation processes are complex processes, i.e. they are messy, unpredictable, and often challenging, and their success requires strategic, multi-level, skilful competencies (Westley *et al.* 2013).

2.5.1 Transformation niches

The multi-level perspective (MLP) is one useful framework for understanding systemic transformation (Geels 2002, Smith & Raven 2012, Folke *et al.* 2010, Backstrand & Kronsell 2015). Viewed using the MLP, the food system consists of three levels (Markey 2017), i.e. a landscape (macro) level, a regime (meso) level, and a niche (micro) level (Geels 2002). The three are structured in a way that regimes are embedded within landscapes and niches within regimes (Olsson *et al.* 2014). Figure 4 below illustrates the food system in the lens of the MLP, and how the multiple levels constitute a nested hierarchy.

Niches are the protective spaces or incubation rooms where innovations are generated, and regimes are the semi-coherent rules that enable and constrain activities carried by different social groups, responsible for the stability of systemic transformations (Geels 2002: 1260-126). The landscape is the external structure or wider context in which niche or regime interactions take place (Geels 2002). The MLP regards transformation processes as caused by the dynamic interaction between the processes at different levels (as adapted from Geels 2002). Niche-innovations build up internal momentum, while changes at the landscape level create pressure on the regime. Destabilisation of the regime in turn creates windows of opportunity for niche-innovations to form new regimes. Only when changes on all three levels reinforce each other into an overall systemic transformation does a transition occur (Schot & Geels 2008, Avelino et al. 2017).

In South Africa, there are some notable initiatives including the Slow Food Youth Network (SFYN), the Food Sovereignty Campaign (SAFSC), Southern Africa Food Lab (SAFL) and Ikhaya Garden in Khayelitsha that can be regarded as innovation niches involved in food system transformation processes (Drimie & Pereira, 2016). These initiatives promote values such as ethical consumption, direct links between farmer and consumer, and facilitate dialogue between various stakeholders to bring about collaborative learning, foster innovations and experimental action towards a more just and sustainable food system (Drimie 2017). These are grassroots initiatives – i.e. those that "operate in civil society arenas and involve committed activists experimenting with social innovations as well as using greener technologies" (Seyfang & Smith 2007: 585).

This paper refers to niches as the "alternative" food system players, including grassroots initiatives such as those mentioned above. These niches support local producers, struggles against economic globalisation, and seek to maintain small-scale farming in peri-urban areas (Dubuisson-Quellier *et al.* 2011). They also offer consumers new access to spaces of production (Venn *et* al. 2006) and empower them to make informed decisions and even negotiate with producers on some of the specific characteristics of products or of production systems (Dubuisson-Quellier *et al.* 2011). Within the South African food system, or the landscape, there are tensions that are creating opportunities for such niche-level activities to provide novelty that changes the regime (i.e. Geels 2002).

The current regime as referred to in this paper includes all the dominant players in the different food industries. The regime extends beyond South Africa, as some factors such as import-export dynamics, shared production paradigms are at play

internationally (Markey 2017). Before grassroots initiatives can effect change at systemic level, there is often an inception process. This can be in form of meetings, design processes, collaboration, or campaigns. This inception process is crucial but may sometimes have a difficult time breaking through to the larger system because "regulations, infrastructure, user practices, maintenance networks are aligned to the existing practices" (Geels 2002: 1258).

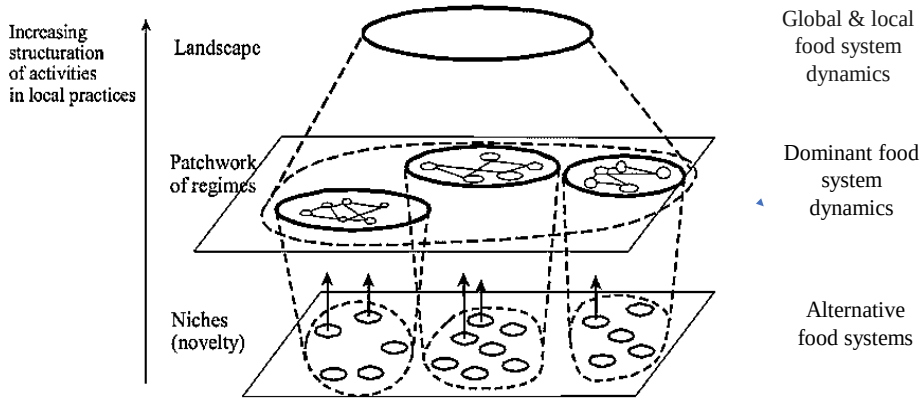

Figure 4: The nested levels of the MLP applied to the transformation process of the food system (adapted from Markey 2017).

Bottom-up change or stepping out from niche to regime level is not a once-off event, but a process that occurs when there are tensions in the regime that allow opportunities for niche-activities to accumulate (Callon 1998, Geels 2002, Geels 2011). This suggests that the more niches birth radical innovations, the more the chances of newness to emerge and then spread across larger scales when opportunities arise (Geels 2002).

2.5.2 Processes of transformation

Although large system changes in any SES differ in context from one to the other, three types of scaling are regarded as key, as illustrated below (adapted from Moore *et al.* 2015):

1. Scaling out – e.g. reaching more people: principles and impact not mere replication
2. Scaling up – e.g. developing innovation into law and policy
3. Scaling deep – e.g. using narrative to impact cultural roots and enable transformative learning in people's hearts and minds, specifically their relationships, cultural values and beliefs

Often there exists a gap between niche activities and the larger system, and between adopted innovation and a larger systemic change if scaling strategies are not

deliberately enforced (Westley *et al.* 2013, Moore *et al.* 2015). Some of the skills involved in successful ecosystem stewardship that are vital when scaling innovation include the following (Westley *et al.* 2013: 3-4):

1. Facilitating knowledge building and utilisation among the different stakeholders. This can include generating new ideas, conducting experiments and sharing alternative techniques and practices.
2. Building vision that all can agree on and aspire towards as a collective.
3. Developing social networks between similar and different stakeholders to enable coalitions, and safe spaces of engagement
4. Facilitating/ developing social innovations by building together different kinds of thinking.

These skills support the need for niche activities, and specifically the creation of transformative spaces where such activities can be developed and fostered, in facilitating SES transformations towards more sustainable trajectories.

2.6 Transformative, "safe" or "safe enough" spaces

Transformative, "safe" or "safe enough" spaces are vital in transformation processes (Westley *et al.* 2015). Safe spaces are about experimentation, and creating opportunities for newness to emerge at small scales and then spread across larger scales (Ely & Marin 2017). The experiments in safe spaces look different in different contexts, but they have a common goal towards developing disruptive innovations that can create new SES pathways (Feola & Butt 2017). There are different forms of innovation, including social and technical innovation (Avelino et al. 2015). Each type of innovation serves a different purpose, and both often work in conjunction to address a challenge or need in the society, or bring about positive futures (Krige & Silber 2016, Pereira et al. forthcoming).
Social innovation labs and transformation labs are two processes that are specifically aimed at creating such "safe" or "safe enough" spaces for radical innovation.

2.6.1. Social Innovation Labs

Social innovation is the "new combination and/or configuration of social practices… prompted by certain actors or constellations of actors in an intentional, targeted manner with the goal of better satisfying or answering needs and problems than is possible based on established practices" (Howaldt & Kopp 2012: 47). It entails change, and a deviation from the norm, often driven by actors that take a leading role, or so-called social entrepreneurs (Avelino et al. 2014, Krige & Silber 2016). Social innovations include "any initiative (product, process, program, project or platform) that challenges and, over time, contributes to changing the defining routines, resource and authority flows or beliefs of the broader social system in which it is introduced" (Westley et al 2015: 6).

Social innovations alone do not transform a system (Avelino *et al*. 2014), and are not a panacea (Westley *et al.* 2015). They are, however, informed by the understanding that complex systems are uncertain and dynamic, and do not comply with simple laws of cause and effect – that a large effort does not imply similar results, rather, a "small effort at the right time (e.g., a critical threshold) will create a ripple effect and a

cascade of changes that produce a large result" (Westley *et al.* 2015: 7). Alternatives such as degrowth and localisation, collaborative economy, solidarity, social entrepreneurship and social economy are some of the options being explored in the field of social innovation (Avelino *et al.*, 2015).

The concept of "Labs" as adopted by the Social Innovation Lab Guide (SILG) places emphasis on "imagining high potential interventions", gaining system sight, redefining problems, and identifying opportunities in the broader context with the potential to tip systems in positive directions" (Westley *et al.* 2015: 7). Social innovation labs are spaces for re-imagining societal practices and norms, and are a three-step process of developing, testing and instigating innovation strategies (Westley *et al.* 2015). When innovation (social and/or technological) is done repeatedly over a period, with the focus of building human capacity to support transformation to a new system, it has the potential to transform a system (Westley 2013, Stirling 2014). Across Europe and Latin America, there are many examples of international networks and initiatives termed as social innovation labs (Avelino *et al.* 2014). These are usually geared towards sustainable transitions and examples include the Impact Hubs of Germany and Hungary, Time Banks in the United Kingdom, Living Knowledge Network in Denmark and Romania, and Transition Towns in the UK and Hungary (Kemp et al. 2015, Avelino et al. 2017).

Living Labs, defined as a "user-centric research methodology for sensing, prototyping, validating and refining complex solutions in multiple and evolving real life contexts" are another example of labs (Eriksson et al. 2005: 4). These labs involve several key stakeholders and are operated on five key principles of openness, influence, realism, value and sustainability (Eriksson et al. 2005, Bergvall-Kåreborn et al. 2009).

Design labs are another example of labs. These apply design thinking to tackle wicked problems of life and vocational wayfinding (Burnett & Evans 2016). These labs train people to think like designers, by helping them "reframe" dysfunctional beliefs that surround life and career choices and "way find" (i.e. ideate) by adopting basic design tenets such as bias-for-action, prototyping and teambuilding (Burnett & Evans 2016). Living labs, design labs and T-labs all prototype new ideas and innovations. However, what sets T-labs apart from these and other labs or participatory workshops are the commitment and relation with nature (socio-ecological component) and the specific group configuration (i.e. selection of participants) based on considerations of 'transformative agency' and driven by existing partnerships, trust relationships and windows of opportunity in each context (Westley et al. 2013, Ely & Marin 2017).

2.6.2. Transformation Labs (T-labs)

Transformation labs (T-labs) draw on and further develop the concept of social innovation labs (Ely & Marin 2017, Pereira 2017). T-labs contribute to social change and ongoing transformations by convening and providing a space for diverse system actors with different resources (such as social capital, networks, skills, technical expertise) to "support novel re-combinations" and "bridge innovations" (Ely & Marin 2017). T-labs are yet to be universally defined, however as niches or protective spaces, they are processes that are specifically designed and facilitated by experts to

intervene and to support multi-stakeholder groups in addressing in complex SES problems (Geels 2002, Westley *et al.* 2015, Pereira 2016).

T-labs are intentional intervention processes that require thorough planning, but are still flexible enough to allow "emergence and the unexpected to occur" (Pereira 2016). This suggests that the form a T-lab takes can change, depending on the context and the people involved (Feola & Butt 2017). Several key factors suggest conditions under which a T-lab may be an effective intervention (Westley *et al.* 2013, Westley *et al.* 2015, Ely & Marin 2017, and Pereira 2017):

1. There is a complex SES challenge to address
2. A diverse group of participants with potential for transformative agency exists
3. There is an identifiable action-oriented outcome as the end goal of process
4. There is a convenor who is strongly motivated
5. There has been little to no niche impact on the regime (i.e. no successful implementation of the alternative innovations in the dominant regime)
6. There is tension in the regime, or noticeable shifts in the culture or economic or political scene. These serve as potential windows of opportunity for T-lab innovations to take effect.

Geels (2012) describes three processes that take place within niches, that I suggest can also be associated with T-labs, based on the similarities of their objectives. These niche functions have been highlighted as the roles that transformative spaces (specifically T-labs) can play:

1. Learning about different phenomena, or the problems of the existing system
2. The articulation of expectations or common visions to attain
3. The building of social networks and enrolment of additional actors in niche activities.

2.6.3. Functional roles of transformative spaces

Building on the understanding of niches and the processes that can take place within innovation niches, several key functional roles of transformative spaces can be identified, including learning, engagement and protection.

Learning

Learning refers to acquiring new knowledge, or new ways of interpreting information, facts, skills, and methods (Cundill *et al*. 2015). This is crucial as knowledge about complex systems can quickly become outdated (Biggs *et al.* 2015). Dialogicality, or the "…ontological characteristic of the human mind to conceive, create and communicate about social realities through mutual engagement" (Akkerman & Bakker, 2011: 136, Marková 2003) involves deliberate interaction. In other words, learning typically occurs in a social setting that involves multiple perspectives from different stakeholder groups that are linked by a common challenge.

"Safe" or "safe enough" spaces such as T-labs encourage transformations by enabling conducive learning spaces that encourage discussion where individual voices can be heard (Pereira et al. 2015). Using narratives and sharing stories is a powerful way of

fostering transformative learning and disseminating knowledge that can change cultural beliefs and norms (Moore *et al.* 2015). In safe spaces, people can share their (personal) stories, experiences, best practices, skills and talents with others, and in the process, assist others to learn and change their behaviour. In "safe enough" spaces, people are still able to share, but there is a level of discomfort that participants experience at different times as emotive issues related to the wicked problem at hand emerge, for example race, identify, inequalities etc. Ideally, these spaces are not a once-off "activity" but are carefully planned processes of engagement with diverse actors and/or the environment over a period (Westley et al. 2013, Cundill et al. 2015).

Within the food system, one could hypothesize that if more people are equipped with awareness and knowledge about alternative food practices, such as the benefits of indigenous food and growing your own food, they may reconsider ways in which they engage in growing and consuming food. When the negative impacts of mass food production on the environment are highlighted, people are better able to appreciate the benefits of getting produce from small-scale, local farmers or food sellers. Thus, this type of learning can be transformative to aspects of the food system, specifically the pockets in which such practices gain traction.

Engagement

Safe spaces allow a diverse grouping of people deeper engagement with questions of sustainability, with the aim of addressing real-world problems and sharing of knowledge (Westley *et al.* 2015). These spaces can be an intervention in a crisis, or can be as a means of furthering engagement and dialogue in a community on a subject. However, for a safe space to be effective, i.e. "safe enough", the interactions must be repetitive or occur over a period, and in a neutral space for all participants. The more frequently that people are exposed to narratives and good practices, and hearing about the results/impact, the more likely they are to adopt them for themselves (Geels 2002, Moore et al. 2015).

Pereira *et al.* (2015: 6035) describe safe spaces as a place where people can "freely think without the weight of a disciplinary history or institutional commitments to a given approach that may constrain dialogue, co-create and prepare innovative ideas and interventions*".* This suggests that spaces that are "safe" or "safe enough" are empowering, freeing and open platforms for engagement regardless of one's status, beliefs or background, and thrive best when each participant contributes their ideas. However, successful implementation of this requires (good) facilitation skills (Westley *et al.* 2015).
Whenever diverse people converge, disputes are prone to occur, more so in such cases where conversation often concerns personal or societal challenges. What is designed to be a safe, free and innovative space for all can easily become intimidating and exclusionary to other groups of people in the room without appropriate facilitation. The term "safe enough" spaces is used to delineate spaces where critical facilitation is employed to create an environment that is 'safe enough' for open sharing, but that still enables the difficult and contentious conversations to happen. They are thus designed to illicit and protect these difficult but crucial dialogues from pressures that may stop them from maturing into innovations (Smith & Raven 2012).

Protection – shield, nurture and empower

In any domain, when an innovation is in its initial stage, it will face opposition from the dominant regime (Biggs *et al.* 2012, Westley 2013). Often, there is conflict between the emerging innovation and the cultural norms or practices that the people are accustomed to (Moore *et al.* 2015). The development of any innovation is context-dependent, but all entail investment of time, energy and commitment by niche actors to navigate the resistance faced from within the group and from those outside the safe space (Moore *et al.* 2015). If niche activities are introduced/implemented before they are mature enough to face opposition and resistance from outside the safe space, the likelihood of them challenging and replacing the dominant regime is low.

When niche-activities spread to the regime level, the tensions heighten (Geels 2002, Moore *et al.* 2015). Political opportunity, i.e. "the likelihood that an organizational field will permit actors to identify and introduce novel institutional combinations and facilitate the mobilization of resources required to make it endure" is necessary (Dorado 2005: 113). Although Dorado is referring to social innovations, the concept of a window of opportunity can also be used to describe how niche-activities can become embedded in the regime (Pereira 2016, Elyn & Marin 2017, Pereira et al. forthcoming). Until that opportunity exists, innovation remains at niche level, where actors can continue to refine their ideas through question, debate, and inclusion of diverse knowledge, networks, skills and influence (Battilana *et al.* 2009). This is an empowering process to strengthen the innovation in a way that when political opportunities arise, they can withstand the resistance.

2.6.4. Transformation Labs (T-labs) in the Global South

As established earlier in the thesis, within the global south there are many challenges within SES, particularly the food system that call for transformation. Even though transformation labs (T-labs) are one of the tools that can be used to resolve complex systemic or wicked problems, there are not many examples of the use of T-labs as an intervention.

Currently, the literature that informs the implementation of T-labs is based on a Eurocentric, not global southern contexts (i.e. participatory research emerging from the Institute of Development Studies (IDS) in the United Kingdom, science, policy and innovation studies, social innovation labs guide from the University of Waterloo in Canada, Design labs at Stanford University in the United States). However, the dynamics of the two contexts are invariably different, as is discussed later in this thesis. Thus, there is still need for decolonisation from Western thinking and innovation within the African context - i.e. a recombination of different resources, including knowledge, in new ways (Bagele 2012, Ely & Marin 2017).

Examples of T-labs within the global south include those being carried out in Kenya that are focusing on low-carbon energy transitions to serve the needs of the poor (Ely & Marin 2017). These T-labs are part of a larger project (Pathways Network) that emerged from co-design workshops that identified sustainability challenges and shared research priorities amongst knowledge partners convened by different hubs such as the African Centre for Technology Studies in Kenya, Jawaharlal Nehru

University in India, Beijing Normal University in China and Arizona State University in the United States of America (Ely & Marin 2017).

2.7 Conclusions

Social ecological systems (SES) and the food system are facing complex challenges that require innovative ways of addressing them. This is a result of the impact of human activities that have become equivalent to geological forces acting on the Earth System. Although the concept of the Anthropocene is not fixed but is constantly evolving and involves "a plurality of meanings and tensions..." (Lidskog & Waterton 2016:396), there are various emerging assumptions and predictions of the consequences of human action that are calling for urgent action (Rockström et al. 2009, Steffen et al. 2011).

The food system specifically is facing unprecedented challenges such as food insecurity, malnutrition, lack of dietary diversity, long and opaque value chains and the effects of climate change. These call for a transformation towards more ecologically sustainable, economically viable and socially just future food systems. Although humans are the dominant force in the biosphere and their action causes damage, they are also able to influence the biosphere and SES for the better. Human agency has capacity to bring about sustainable futures in social-ecological systems (SES), and to ensure the well-being of societies and natural resources (Biggs et al. 2012, Westley *et al.* 2013). These processes of deep systemic change involving multiple players and layered efforts, i.e. transformations, are complex and challenging processes. As a result, they require deliberate enforcement towards developing disruptive innovations that can create new, more sustainable trajectories. Niches play a role in these transformative processes by providing a “safe enough” space where people can engage with one another on complex SES challenges, and where emerging innovations are protected until a window of opportunity exists for them to get implemented in the regime.

Transformation labs (T-labs) are an example of a niche that aim to provide a “safe” or “safe enough” space for fostering radical innovations that can lead to systemic transformation. These are based on principles of transformation and systems thinking, and until recently, have mostly been used as a tool towards sustainable transitions in Western and Northern contexts, not the Global South or African contexts. Thus, they are still a “new and experimental concept” in the Global South (Pereira 2017), and a research gap exists in understanding their use in the global South, and specifically in the African context due to the unique social, political, economic and ecological dynamics at play.

Chapter 3 – Methods: Exploring the use of Transformation Labs in Food system transformation in the Western Cape

3.1 Introduction

Transformation labs (T-labs) are carefully designed and facilitated processes to support multi-stakeholder groups in addressing in complex SES problems through the creation of "safe" or "safe enough" spaces for developing and fostering innovations (Geels 2002, Westley *et al.* 2015, Pereira 2016). The idea of T-labs emerged from the concept of social innovation labs, which are specifically designed processes that can intervene in complex social challenges, and shift the rules and relationships that shape and govern the society – i.e., foster systemic transformation (Westley *et al*. 2015). T-labs shield, nurture and empower emerging innovations from pressures emanating from the dominant system (Geels 2002, Smith & Raven 2012), and provide a holding or temporary protective space for innovative ideas or activities to develop (Smith & Raven 2012).

Certain characteristics are necessary for successful T-lab process implementation. These include a complex problem to address, a motivated and diverse group of actors that are willing to take a leadership role in addressing the challenge, a potential window of opportunity (due to increased cracks and tensions in existing regime) for niche activities to permeate through, and the goal of an action plan as an outcome of the process (Westley *et al.* 2013, Westley *et al.* 2015, Ely & Marin 2017, and Pereira 2017).

This chapter analyses a T-lab intervention process in the local food system of the Western Cape, South Africa. Researchers from the Centre for Complex Systems in Transition (CST) at Stellenbosch University, the Southern African Food Lab (SAFL) and Stockholm Resilience Centre (SRC) designed and facilitated two Transformation Lab (T-lab) processes, first in November 2016 and again in July 2017. Both T-labs brought together a diverse group of actors that are actively engaged in creating alternatives in the food industry of the Western Cape, including researchers, producers, food innovators and food activists. The T-labs were designed as a "multi-actor innovation process that addresses pressing issues in local food systems… by aiming to better understand them, build coalitions of change, generate ideas and commitment, and test these ideas on the ground" (T-lab 2 design: see appendix 5).

Cape Town and Stellenbosch, like most towns/cities of the world, rely on outside food sources and their needs usually exceed the capacity at which their sources can provide (IPES-Food Policy on Cities, 2017). Cape Town is the economic center of the Western Cape Province, and the second largest economic hub of South Africa, thus it has a key role to play in the Southern African Region (Gerster-Bentaya et al. 2011). This made the Western Cape (where the two towns are located) an ideal case study area for piloting the T-lab processes within a global southern context. One could hypothesize that if the T-lab were to be successful in the Western Cape, it could (easily) gain traction and be implemented in other areas, too.

This chapter focuses on the first T-lab process, and presents the methodologies used to collect data, and the results from a follow-up study that was conducted afterwards. The findings provide insight into the use of T-labs as a novel way of engaging with the complexity of the food system in the South African context, and more broadly sheds light on T-labs as a transdisciplinary research process between academia and actors from the alternative food system.

3.2 Case Study: Fostering food system transformation in the Western Cape

The Western Cape is one of the nine provinces of South Africa and is home to over 5.82 million people on 129 370 km2 of land (Statistics South Africa, 2017). By province, the prevalence of hunger in the Western Cape is the lowest in the country, at 16.4% in 2012 (Shishana et al. 2014). However, many households do not have access to adequate food, and many children are at risk of malnourishment, despite having a comparative prosperity and well-established food system (ACDI 2016, Mbhenyane 2016). The province's food system is in crisis, without any clear or shared understanding of a pathway toward a more sustainable configuration (Drimie & Pereira, 2016).

The Western Cape is prone to negative impacts caused by climatic changes, such as increased temperatures, decreased winter rainfall, longer dry spells and more frequent droughts (ACDI 2016). It is also subject to some of the trends that shape South Africa's agrarian sector, including white commercial farmer domination over many black subsistence farmers, large corporate company domination over available or accessible food, and increased food waste (Pereira 2014).
Most of the urban dwellers in the province rely on their rural counterparts and retail sector (both formal and informal) for their food supply (Battersby, 2011). For example, the Philippi Horticultural Area is responsible for about 100,000 tonnes of Cape Towns' annual fresh produce, estimated to be 80% of the city's vegetable needs (Battersby-Lennard & Haysom, 2012).

Although ecological resources are the basis for food production, urban agriculture is a food security strategy for the province, especially the poor who cannot afford to buy all their food (Frayne et al. 2009). However, because of limited space for agriculture, low income and the demand on their time, many urban poor often consume highly processed, energy-dense food that is low in nutrition and devoid of dietary diversity (Temple & Steyn, 2009). Such diets comprise of energy-dense foods including refined cereals, sugar and fat, with little to no nutrition-dense foods i.e. lean meats, fish, vegetables and fruit (Faber & Drimie 2016, Mbhenyane 2016). In addition, the street food vendors who may be providing these foods often lack access to clean water, refrigeration, hygienic food preparation areas, or basic food safety training (Even-Zahav 2016, IPES-Food 2017). Many of the townships (i.e. Khayelitsha within the Western Cape) do not have the right infrastructures and/or facilities i.e. refrigeration and storage space to keep the food for long, and this in turn can lead to food-borne diseases (Pereira 2014, Even-Zahav 2016, Gordon et al. 2017, Resnick 2017).

More recently, there have been increasing food movements that support local food production within the Western Cape, through mobilising youth around food, advancing healthy and culture- appropriate food and creating food supply sources that

promote a localised social economy (Pereira 2014, Drimie & Pereira 2016). These initiatives include the Slow Food Youth Network - SFYN, the South African Food Sovereignty Campaign - SAFSC (i.e. the Ethical Coop and The Surplus People Project), and the Southern African Food Lab (SAFL (Drimie & Pereira 2016). These initiatives range from "agroecological farming with marginalized communities" to "reconstituting the terms of engagement between smallholders and retail" and "providing a powerful signal for the emergence of alternative systems" (Pereira & Drimie 2016: 3). Such alternative food systems have the potential to "restore rural areas, enrich poor nations, return fresh and wholesome food to cities, and reconnect suburbanites with the land by reclaiming lawns, abandoned lots… to use as local farms, orchards, and gardens" (Halweil 2002: 7).

To foster the development of an alternative food system in the Western Cape, an intervention process consisting of two T-labs was undertaken during 2016 and 2017 as highlighted below.

T-lab 1, 27-30 November 2016

The first T-lab process (Appendix 1) was hosted at a nature reserve, some 130 km outside of Stellenbosch with the aim of building and strengthening networks within the Western Cape Province's alternative food system. There were 35 participants in total; including chefs, researchers, artists, food activists, producers, retailers, food innovators, an anthropologist, food scientist and an artisanal baker. Although the participants work at different scales, their work is embedded in a desire towards addressing sustainability or social justice issues, working together with communities towards healthier diets, or food movement or campaign for better access to food for all, especially the urban poor. Four researchers from the Centre for Complex Systems in Transition (CST) at Stellenbosch University, the Southern African Food Lab (SAFL), and Stockholm Resilience Centre (SRC) facilitated the T-lab. The T-lab process included a learning journey from the pick-up points to venue, facilitated discussions and group activities such as cooking together.

T-lab 2: 19-21 July 2017

The second T-lab was designed as a consolidation workshop, and included both former and new participants. It was hosted in July 2017, at a venue 30 minutes outside of Stellenbosch. The T-lab gathered alternative food system actors from the Western Cape, to "refine emergent ideas and to strengthen the coalition of change", to enable implementation (Appendix 5). All participants from the first T-lab were invited, and a few new contacts who could not attend the first T-lab. Some of the first T-lab participants also recommended that invitations be sent to their contacts who might benefit from the T-lab process. This created a snowball effect (Emerson 2015) as these also recommended their wider networks. 22 participants attended the second T-lab, including: permaculture specialists, food and land activists, restaurateurs, urban farmers, and a representative from the informal traders' association, researchers, anthropologist, and indigenous food innovator. As was the case with the first T-lab, there was good representation from the niches, but not the regime, i.e. conventional food system. The second T-lab group was smaller compared to the first one, i.e. with less participants, and the process a day shorter. Only two of the four researchers from

the first T-lab (from the CST and the SAFL) facilitated the process, and introduced new activities such as pre-lab design workshop, and physical exercises.

The study reported on in this thesis focused on tracking the outcomes from the first T-lab. The second T-lab was only hosted towards the end of July of 2017 and was therefore not included due to the thesis timeline. This chapter describes the methods that were used at the T-lab, and to track the outcomes, including pre-lab activities, activities conducted during the T-lab, and post-lab activities. As laid out in chapter 1, the aim of the study was to investigate two core research questions:

1. Can a T-lab serve as an intervention for food system transformation in the South African context?
2. How can a process like a T-lab be nurtured to create new food trajectories through its impacts on participant small niche actors?

By answering the above research questions, the study aimed to:

1. Determine the viability of a T-lab as a safe space or intervention in the food system, i.e. whether it can build relations and strengthen the networks within the alternative food system, and serve as a platform for transformative processes through dialogue and coming up with solutions to the challenges participants face.
2. Track the impacts of networking in an alternative food industry in the Western Cape, specifically the Stellenbosch and Cape Town area.
3. Determine the durability of start-up alternative food initiatives arising from the T-lab.

3.3 Methodology and methods

The goal of the T-lab conducted in November 2016 was to serve as a platform for dialogue to harness the potential for food system transformation in the broader Cape Town area. By connecting alternative food system actors and proponents, the T-lab sought to create bridges, by for example linking chefs to producers, restaurateurs to informal traders, and academics to actual work on the ground. This connection and process sought to provide an opportunity to re-imagine the ways in which food is produced, processed and consumed in the Western Cape, and potentially connect diverse initiatives to enable an alternative food system to become more embedded, sustainable and strategically aligned to influence the dominant food system. In this way, the T-lab itself was a research method, with clearly defined goals and objectives.

The T-lab process was designed to answer two key questions, which were formulated by the local research design / facilitation team, and to feed into the ensuing Masters research.

1. What is the viability of linking alternative food actors into the mainstream without losing the integrity that makes it small-scale/alternative?
2. How do we build relationships that enable alternative food systems to grow?

For the project, I took on several roles, i.e. coordinator (of administrative tasks and logistics such as invitations, transport and venue), intermediary between the

facilitators and the participants, and a reflective scientist that was observing and taking notes during the process (See Pohl *et al*. 2010). This meant that I was involved and invested in every part of the process from start to finish.

Several methods of data collection were employed at different stages of the T-lab process, as each stage required different feedback from the participants. These are summarized in the table 1 and discussed further below, with a focus on the pre-lab, lab and post-lab activities, and included the use of surveys, questionnaires, observation and semi-structured interviews.

Although these were employed, note must be taken that the T-lab process itself was the foundation and thus main research tool and that all the data collected before, during and after were informed by the process (and research objectives).

Table 1: Methods employed during research process

Stage of research	**Method**	**Objective**
Before T-lab	Survey/questionnaire	To explore the expectations and interests of the participants, to feed into the design of the T-lab process.
During T-lab	Participant observation Dialogue	To gain insight on the participant's understanding of the process.
After T-lab	Survey/questionnaire	To evaluate the T-lab design and process.
	Semi-structured interviews	To collect empirical data for research study to explore: 1. Whether the T-lab served as a transformative space or intervention in the food system in the Western Cape. 2. The impact of networking during and after the T-lab process on the alternative food industry.
	Correspondence (Email/phone)	To keep track of any new developments on the resolutions, action plans and initiatives that had emerged from the T-lab process.

3.2.1 Pre-Lab

Invitations

Invitations to the T-lab were sent out over email to contacts from the Southern African Food Lab (SAFL) database, with a desire to have good representation of the alternative food system of the Western Cape in the room. This was in line with the aim of the T-lab; i.e. to serve as an intervention within the food system. The design team were particularly interested in bringing together alternative food players as these are already working towards change in the food system, and the T-lab would potentially build on their (ongoing) efforts. These included chefs, government officials, researchers, indigenous and slow food activists, informal food traders, academia, and restaurateurs. The response showed that many of those invited were interested in attending the T-lab but were occupied with other activities or were unable to take three days off work/school/business to attend the T-lab. Others did not respond to emails, and follow ups with phone calls and further emails was done. As invitations were rejected or accepted, more recommendations were made on who would be interested in the process. Thus, a snowball effect was created (Emerson 2015), and over 70 invitations were sent out in total.

Pre-workshop survey

Before the T-lab, a quick survey (see Appendix 2) was sent out to 25 participants who had confirmed their attendance. This pre-workshop survey was designed to help the facilitators of the workshop and the participants to come to the workshop prepared, and with a clear understanding of their expectations and aspirations from the T-lab. The survey consisted of 5 open-ended questions about the participant, their reasons for attending the workshop and what they expected the outcomes to be. These questions were formulated (with the help of the facilitation team) to feed into both the design of the T-lab, and the follow-up study afterwards. It was a Google Form that participants who had confirmed their attendance were asked to respond to. Even after follow-up requests to encourage participation, of the 25 invited alternative food system players, only 14 responded to the survey. Many of them cited having no access to internet and/or time as the reason they did not complete the survey. To ensure that everyone would have access to the questionnaire, the facilitation team decided to give out printed questionnaires going forwards instead of setting up online surveys.

Questions that were asked in the pre-workshop survey focused on the activities that the actors are involved in within the food system, their expectations of the T-lab, and areas which they considered important intervention points (table 2). These questions were asked to include the interests of the participants in the design of the process, and in so doing make it a worthwhile project for everyone.

Table 2: Focus areas and questions asked in the pre-workshop survey questionnaire

Focus area	Questions asked
Participant role or interests in the food system	1. What activities are you involved in within the South Africa's food system? 2. What topics do you think are important to consider in imagining the future of the South Africa food system and why?
Participant expectations	3. What are the reasons you are interested in attending this workshop? 4. What do you expect the benefits of the workshop to be?
Possible areas of collaboration	5. What do you think are the important intervention points to create change in the Western Cape food system? Why?

3.2.2 T-Lab

Based on the pre-workshop survey, some keywords were identified that indicated people's interests in attending the workshop. Using simple word frequency count is often not the most accurate content analysis technique when interpreting data as some issues are not indicated, yet are important, or are raised but have different meaning/refer to a different context (Stemler 2001). This limitation was identified before the method was employed, however, for the purposes of this study, the technique was judged to be adequate as the results were only to serve as a loose guide on what to focus on.

These key words helped determine the research approach taken at the T-lab. During the sessions and/or activities, the keywords would appear in questions, comments during sessions, and in conversations between individuals outside the structured sessions. When these keywords appeared, I would note them down. The notes were also reflections on my take on the process, or assumptions of what the participants may have been experiencing at the time. The T-lab process was as new to me as it was to them, even though I had spent some time studying the literature informing the process, and why it was essential to conduct such a process with the people in the room. The notes were a way of understanding this transformative process, as well as gaining insight on what it meant to be part of it as an active researcher on one hand, and on the other, a silent observer who was not so involved as to influence the outcome.

There were different contexts in which the keywords were used, but what was important was if the participants were including the words in their conversations or not. Thus, as I captured some of the conversation between participants, I would determine from these interactions whether the T-lab process had captured people's

interests or expectations. I was also able, from these observations, to start and engage in private conversation with people, and this allowed me to gain deeper insight of their perception of the process. I noticed that during these informal, private discussions, participants were better able to articulate their thoughts and feelings, compared to the conversations carried out in group settings.

There were some limits to this approach, however, as I could only be in one place at a time and only engage with one person (or a few people) at a time. This meant that there was only so much scope that I could capture. Even during the conversations, the participant would wander off to other topics first before answering any question, or I would get called off to perform other duties. As mentioned earlier, I had taken on many roles for the research project, and had failed to predict the level at which this might affect my capacity as researcher or data collector. This oversight limited the number and depth of conversations that were had, and the quality of the notes that were taken. Although much care was taken to not have bias towards the key words, conversation that was seemingly outside of the pre-defined key terms may have been regarded with less importance as the others, thus losing out on some important insights and leaving out of the research process some vital information (Baxter & Eyles, 1997).

During observation I also took notice of people's facial and body expressions as they engaged with one another, their reactions to questions, comments and suggestions raised in the room. I also took notice of the way that tensions were handled if someone said something others found to be insensitive or offensive. For example, many times, there were murmurs as a reaction to something, or blank stares by a majority of the room, whereas a few outspoken people would respond. Even though one of the facilitators would step in to allow the silent voices to be heard, or for others to give in their opinion, often the outspoken ones would carry the conversation while the others would quietly agree or disagree. During break or at meal times, these "quiet ones" would then confide their grievances to a smaller group (i.e. how they did not disagree with something, or with how something was navigated etc.). This pattern went on throughout the T-lab process.

There were several activities that occurred as part of the T-lab process that were key (i.e. using the T-lab as a research method) and for data collection in the follow-up study that was later conducted. These included a learning journey, a provocation, an indigenous food theme, facilitated discussions and presentations, as highlighted in Table 3 below.

Table 3: Methods used during the T-lab process

Activity	**Rationale**	**Aim**
Learning journey	Learning journeys are important tools in developing the "collective leadership capacity [that draws] together all key stakeholders and involve[s] them in a process	The task was designed to aid participants acknowledge what food systems were present in the landscape between their departure point and T-lab venue, and why, and to guide participants to

	that begins with uncovering common intention and ends with collectively creating profound innovation on the scale of the whole system" (Scharmer 2010:2).	identify images that epitomise the challenges of the current food system. Key questions asked: 1. What is wrong/right with the (food) system? 2. What is working/not working? 3. Why is this a problem??
Foraging and a guided tour of the surrounding area	The tour included foraging for edibles and learning about the indigenous flora in the landscape. Some of the participants - an indigenous food innovator, an anthropologist and the tour guide – led the others in harvesting some of the edible wild foods.	To (re)connect people with the local nature, and to learn about the different wild foods in the area. This was also a good way to get people thinking about some of the resources they may have at their disposal in their own localities.
Provocation with realities of the dominant food system	This focused on the realities and strengths of the dominant system and how alternative food actors can learn from some of the characteristics that work.	To help participants determine what is wrong with the current/dominant food system, and what about this system can be connected to the alternative food system. Key questions asked: 1. What are the big issues? 2. How do you (participants) see some of the alternatives? This activity also helped to establish some commonalities between the food actors. Through the discussions, stories that emerged from the participants showed that many face the same challenges, and have shared some victories too. This helped to create further bonds between them, and an understanding of each other's realities.
Presentation	The Three Horizons framework was presented	This was a way of illustrating how change can be projected from what

	during one of the sessions, to enable participants to understand how to "articulate innovation activity into the future in a consistent, evolutionary and coherent way" (Hobcraft 2015:1).	is to what could be within the food system. The framework informed the envisioning exercise on alternative food system futures that participants would like to see.
Facilitated group discussions	This focused on what roles and routines the participants (as stakeholders and actors) play in the food system, what power and resources they have available, and what connections or relationships they have with other people that could enable change to take place in their sphere of influence either within or outside the system.	To create understanding of how change is a result of connections, flow of information and resources, and how power dynamics are often at play.
Visioning exercise	Divided into groups of six or more, participants were asked to creatively illustrate (using kitchen utensils, cutlery, stones, twigs, leaves and fruit) how they envision future food systems.	Questions asked: 1. What is your innovation? 2. What system impact can your innovation have? 3. Does it change power/ roles and routines/groups and networks/ resource flows/ values and norms/beliefs/social - ecological interaction?
Facilitated discussions	These were designed to creatively illicit from participants some of the possible solutions to the challenges they face, thereby strengthening and enabling them to navigate these challenges as best as possible. To allow new ideas to arise out of the diversity within the room, that can then inform a statement of action points. To surface the tensions that people in the room are facing.	Key questions included: 1. What innovations can be implemented to help address food system challenges? 2. How can people of all ages be included in food dialogues and action that can promote mindset shifts? 3. What choices do people have available that can potentially challenge the dominant food system – i.e. foraging for food, exchange of resources and

		information, building a strong network of food system activists.
Group activities i.e. cooking together, chef cook-off	The T-lab was self-catered, which meant that participants were involved in the cooking, cleaning or setting up of tables at all meal times. The cook-off was a playful competition that helped participants interact (with food and each other) in a competitive yet playful way.	To build relations and strengthen the networks within the room as they get familiar with each other and recognize similar goals/common ground.
Indigenous foods	This was a theme throughout the T-lab process to highlight the role that indigenous foods can play in addressing hunger, food insecurity and nutrition challenges in the Western Cape (and at national level).	This was designed into the T-lab process to illustrate to participants the diversity of food choices they have when sourcing food locally and/or seasonally.
Framing resolution	An agreed-upon statement of intent or action points.	The T-lab had been designed to have actionable points as end goal of process. These would ideally be a point of reference or guide for participants action going forwards. However, this did not materialise, instead there was a focus on collaborations between participants and on various ways in which to afford those in need various opportunities.

3.2.3 Post-T-lab

Post-workshop survey

After the T-lab process, a post-workshop survey (see appendix 3) was designed for participants to reflect on their experience and perception of the T-lab design, i.e. give feedback on the T-lab process. This was especially important feedback for the facilitators to have going forwards as the T-lab had been a first "attempt" at introducing the T-lab concept (as an intervention of the food system) to the global south. It was also useful to reflect on questions such as had the process achieved its purpose? What areas needed improvement or to be maintained? Who else should have been in the room that needed to be there? Thus, questions on how useful participants

had found the process, and what influence they perceived the T-lab process had or might have on them personally (if at all) were included.

The survey was given out to 29 of the participants; i.e. those who had attended the T-lab but were not part of the facilitation team or visiting academia from other Universities. The survey was printed out and personally handed to each participant on the last morning of the T-lab, as previously people had stated that they had no access to the internet and could not fill in pre-survey. Nonetheless, of the 29, only 10 responded immediately and/or handed back the survey by the end of the T-lab process. Two more participants took the survey home and sent filled-out copies a few days later, but the rest did not submit their responses even after multiple follow-up attempts, citing time as a factor.

Table 4: Themes and questions asked in post-workshop survey

Theme	**Question**
Usefulness	1. Do you feel that the T-lab has improved your understanding of the alternative food system of South Africa? 2. Do you think the workshop was useful for you in your work? (Tick the most applicable) a. Very much b. Much c. Some d. Not at all e. In what way was it useful? Or why was it not useful?
Novelty	3. What was new and/or exciting for you during the process of the workshop?
Influence	4. Do you think the workshop will influence the way you work or relate with others in the field? a. Yes b. No c. In what ways will it influence your work? Or why will it not influence your work?
Action points	5. What action points will you implement in your work because of the T-lab?

Semi-structured interviews

For the follow-up study, semi-structured, face-to-face interviews using questionnaires were administered as research instruments (Bryman & Bell 2014). Interviews are the most common data collection method in South Africa because of the prevalent low literacy levels that may hinder the use of other survey data collection methods (Babbie & Mouton 2014). Interviews also make for meaningful conversation (Graham

2007), which was suitable for the exploratory nature of this research, and ensured an exchange of knowledge, i.e. research with society, not for society (Scholz, 2000). As such, interviews were regarded as the most effective method of data collection for this research project. This approach also enabled me to take on an active role as a researcher (Scholz 2000) and to be mindful of a participants' posture, gauge their level of interest during the discussion, which helped to decide when to move on from a question or to simply let them talk.

Emails (followed up with text messages where necessary) were sent out to formally request interviews with 10 (as a representative sample) of the participants that had attended the T-lab earlier. To reduce sampling bias, it would have been ideal to interview all participants from the T-lab, however that was not possible due to time, spatial and financial restrictions. Instead, another method was employed - among the 29 participants (i.e. those who were not in design or facilitation team) who had attended the T-lab were several prominent roles that they serve in the alternative food system. For example, there were four chefs, two retailers, a baker, three wild food innovators, four organic food farmers, two restaurateurs, a nutritionist, food activists, a food scientist, and a few researchers. For the interviews, I strategically set out to get a perspective from each category, thus one person in each capacity was selected as a representative of the category. Although care was taken to have equal gender representation, of the 10 that were interviewed, only four were female. This was due to spatial restrictions and unavailability of the other female practitioners to be interviewed.

In some ways, categorisation was a limitation to the data collection process as serving similar roles in the food system does not imply that they share the same perspective. However, this was an effective method in getting various opinions from across the food system, and to hear of how the T-lab may have impacted various actors differently.

The actual interviews were conducted between April and July 2017, at a place of their convenience (workplace, home or public place i.e. restaurant) to reduce power asymmetries (Pohl *et al*. 2010). The T-lab process had somewhat left the impression on the participants that they were part of a pre-designed process and their input was of minimal value, so it was important that they know that they were collaborators of the interview process and that they could be as comfortable and free as possible so that we could mutually benefit from the interaction. All interviews were conducted within working hours (09:00 – 17:00 hours) within the Stellenbosch and Cape Town area.

Each interview lasted 45 minutes to one hour on average, with one outlier case of a six-hour conversation with a participant who had insisted on a longer conversation. Questions were focused on collecting data that would help determine whether the T-lab process had been an effective tool of intervention in the alternative food system of the Western Cape, and to track any potential impacts resulting from the T-lab (Appendix 4). The way each question was asked or structured during actual interviews varied from person to person and depending on the "flow" of conversation, however there was uniformity on the actual content of each question.

All interviews were recorded and transcribed manually at verbatim level (Graham 2007). To do this, I had made recordings of each interview on my phone, so I would go back to listen to each interview and type out the conversation word for word on a Word document. To lessen the margin of error and the issues of accuracy, fidelity and interpretation that transcription introduces, I went back to double check my interpretations with the original recordings and the notes I had taken during the interviews to ensure that my interpretation was precise and/or contextual (Graham 2007). Then, I elicited the help of a colleague who was also interested in the project to help analyse data and develop codes and themes as a check for consistency (O'Reilly & Kiyimba 2015). These were then condensed and presented (as findings) in descriptive statements and further analysed in the discussions throughout the thesis.

As mentioned, earlier in the process I had taken note of the keywords that reflected people's interests (see pre-workshop survey, Appendix 2), and some of the discussions that emerged from the T-lab. During data analysis, these key words also helped me to organise the collected data under clusters of similar key words and phrases, in addition to the emerging themes. Then, these were presented in the thesis to reflect on the research questions and objectives, i.e. thematic data analysis (Bryman & Bell 2014).

Table 5 below gives a brief profile of the participants from the T-lab that were interviewed. This was important to highlight so that the reader has a better idea of who was involved in the T-lab and especially the interview process, what role they play in the alternative food system, and why the T-lab process may have played out the way it did. The profiles could also help explain some of the responses that the interviews and other data collection tools yielded. The participants have been categorised by the roles they play in the food system, i.e. researcher, producer, processor and innovator, and a little is said about each actor.

Table 5: Brief profile of T-lab participants interviewed after the T-lab event

Category	**Gender**	**Brief profile**
Researcher	M	A man at a living and learning institute, with a focus on food systems i.e. the entire food value chain from conception, production through to waste, and how that system interacts with social and ecological factors.
	F	A researcher focusing on nutrition disorders in children and pregnant/breastfeeding mothers.
Food Processors	F	A food processor on a large wine estate that grows organic, grass-fed cattle, chicken, fruit and vegetable, bakes bread and sells fresh farm produce such as milk, free range eggs, meat and cheese.
	M	A baker that also runs a social change business that builds and plants ovens, teaches people to bake, and works with corporate companies. He is driven by his passion for historical justice for

		the poor– empowering micro-bakers and help turn over the previous imbalance in South Africa.
	M	A chef in a prestigious restaurant that serves seasonal, local and indigenous foods as a large part of the menu. Their customer base includes tourists from all over the world.
Growers/ Producers	M	He has a fruit and vegetable garden in a school compound, in one of the largest and fastest growing townships of South Africa. He works with school children and teaches them the importance of and how to grow their own.
	M	The farm manager at a living and learning institute, and oversees the food chain from garden to kitchen to food waste and is part of a research team. He focuses on building up the soil (not destroying it with fertilizers) and ensuring that soil micro-organisms are protected.
Food Innovators	F	Believes in using what resources are available, and capitalising on benefit access and sharing. She would like to bring indigenous foods into the economy, and for more people to include local edible foods in their diet.
	F	Identifies as working within the food system nuances where there is need for capacitation. She focuses on working with the youth, food waste and seed.
Advocacy	M	Works with informal traders and the economic development department on ways to improve the informal trade sector. He has a large network with stakeholders on local, national and international levels.

3.4 Conclusions

This chapter introduced the various methods of data collection used before, during and after the T-lab, including surveys, questionnaires and interviews, to explore the use of transformation labs in fostering an alternative food system in the Western Cape province. Emphasis was placed on the use of the T-lab itself as a research tool, and a means of data collection through various procedures that were employed during the process. The following chapter presents the findings, including the participants' evaluation of the T-lab process, and their recommendations, the researcher's observations, as well as some of the initiatives that emerged from the T-lab.

Chapter 4 - Findings and discussion: Exploring the use of Transformation Labs in the Western Cape food system

4.1 Introduction

This chapter discusses the findings from the surveys and interviews conducted before, during and after the first T-lab event that was held in November 2016. The results have been structured around the three research objectives, i.e.

1. To determine the viability of a T-lab as a "safe enough" space or intervention in the food system, i.e. whether it can build relations and strengthen the networks within the alternative food system, and serve as a platform for transformative processes through dialogue and coming up with solutions to the challenges participants face.
2. To track the impacts of networking in an alternative food industry in the Western Cape, specifically the Stellenbosch and Cape Town area.
3. To determine the durability of start-up alternative food initiatives arising from the T-lab.

The chapter first presents a discussion of the findings from the pre-workshop survey. These set the tone for the rest of the T-lab journey and helped frame some of the discussions held during and even after the process. Next, the chapter presents some of the participant feedback on the T-lab, i.e. their perception and evaluation of it. This data feeds into the first research question, i.e. determining the viability of using a T-lab as a tool of intervention in the food system. Then, some of the resolutions that emerged from the T-lab are highlighted. Finally, there is a discussion on the overall process, with a focus on some of the key factors to consider when conducting T-labs in a global southern context.

In compliance with Ethics guidelines to keep confidential all information about participants, in this thesis they are referred to by a letter (P) followed by a number e.g. P1, P2, P3…When referring to more than one participant, (-) is used between the numbers, i.e. P1-4-6-8 to refer to P1, P4, P6, P8.

4.2 Background information on the T-lab participants and their expectations

The T-lab had targeted "alternative" food system players from the Western Cape Province, i.e. those that are "actively engaged in creating alternatives in the food industry" (Appendix 5). Initially, there was no fixed criteria to define who an alternative food system actor is or is not. During the follow-up interviews, each participant was asked to define their work, and what roles they associate themselves with in the food system. Some explicitly identify as being an "alternative" food actor (in the sense that they do not subscribe to "conventional" methods) while others do not use the term "alternative" specifically but are aware that they are pursuing different ways of producing, consuming, distributing and disposing of food than what is considered a norm.

4.2.1 Who is an alternative food actor?

Below are some of the activities, values and beliefs that are associated as characteristic of an "alternative" food system actor. These are highlighted as a means

of describing who and what an "alternative" food actor is and does (this might be generalised but is hereby considered as specific to the Stellenbosch and Cape Town area i.e. a global southern context). This is critical to define as there are not many explicit references in literature as to who an alternative food actor is, or what it is exactly that they do, specifically within the local context. Although the research had not set out to define who an alternative actor is, these insights emerged as an important aspect of the research project, and helped to define the context within which the T-lab process was conducted.

1. Challenging others to try alternative food sources e.g. indigenous wild foods (P5-9)
2. Involved in advocacy and awareness of lifestyle changes towards better health and nutrition (P4-5-6-9)
3. Grows own food and/or teaches/inspires others to grow their own food (P1-2-4-5-8-9)
4. Baking and/or teaching others to bake (P1-4)
5. Inspiring self-reliance in others (P4)
6. Uses art to tell stories towards change (P3-9)
7. Advocates for justice for the marginalised (P8)
8. Community development projects and/or activities (P1-4-7-9)
9. Consultancy/advisory board (P3-4-5-6-7-8-9)
10. Creating value-added products from surplus food or other people's "waste" (P1-5-9)
11. Experimenting with edible wild plants to make it palatable (P5-9)
12. Questioning food reality (P4-8)
13. Involved in research projects (P2-5-6-8-9)
14. Experimenting with food growing techniques (P1-2-3-4-8)
15. Reusing and recycling, reducing waste (P9)
16. Making the system more culturally relevant (P9)
17. Involved in (food/seed) policy-making processes (P6-7-9)
18. Working towards creating a short food value chain from farm to consumer (P2-8-9)

4.2.2 An insider's look: the life of an unconventional food actor.

The following reflects some of the themes that emerged during the T-lab process, data collection and analysis. Although some of them do not directly link with the objectives of the research, they were important issues to mention/ highlight in this thesis to give more context to the local alternative food system, i.e. the actors who participated at the T-lab. This can build a better understanding of how the T-lab process emerged as it did, some of the challenges that alternative food actors face, and the circumstances under which they operate. This also gives a better picture of what it means to be an alternative food actor in the global South, and feeds into why there is need for transformative processes such as the T-lab. Although from the initial design stages it was well-known among the facilitators (or well assumed) that conducting T-labs in the global south would be different to a Western or European context, this data provides a clearer perspective of what it means to conduct T-labs in the global south, with consideration given to the various factors at play.

As discussed in the first and second chapter of the thesis, the South African food system is dominated by a few large corporations, leaving little to no room for competition from smaller companies and processors. The study revealed that alternative food actors especially find it difficult to operate in such a competitive market.

Many of the actors identified as either working alone (P5-7-8-9), or have employed others to help them with their work (P1-2-10), and/or rely on informal networks such as friends and family (P2-3-4-5-7) for financial and moral assistance. Some experience inconsistencies in the number of (farm/bakery etc.) workers available per given time as the salaries they pay are not as competent as those on the (conventional) market. This works out to their disadvantage as their work (i.e. organic farming or artisanal baking) often requires manual labour.

More of these challenges have been highlighted below. These are predominantly financial, and include personal challenges and difficulty or inability to access essential resources.

- **Financial setbacks**

Even though organic farming is socially, environmentally and socially friendly, it is not often commercially viable for small-scale farmers, who often find it financially strenuous to sustain as a business (P1-2-4-5). For example, organic farmers compete with conventional farmers that get subsidies, and work with soils that have been heavily damaged for the last few decades due to excessive farming, effects of which cannot be restored overnight (P1).

Inadequate finances are a huge limitation in the work of many actors (P2-3-4-5-6-8-9), and as a result they have little autonomy to pursue interests (P2-8-9), must improvise (P2-9), and/or collaborate with others to reduce certain costs (P1-2-3-4-5-6-8-9-10).

(P5): "*People switch off when I talk about the work I do and then say I have no money… I must always be creative in presenting my work in interesting ways so that people can invest in my projects…".*

"Our work is strengthened by collaborations with other people such as chefs: those at the market, artists at food events to draw in/entertain people. They empower us to empower others" (P4).

(P6): "*Working with other people strengthens the work that I do… we achieve things that one person cannot, and certainly not in the amount of time that we do. Collaborations have helped me to move forward".*

Some have taken up other job opportunities so that they can have a "day job" that pays the bills, thus can afford to pursue their interests in the food scene (P2-6-8-9). Being involved as food activists or food advocate is often on voluntary or non-profit basis, and so the money barely comes in (P5).

"*My job (as a researcher) is a means to an end for what I am really interested in – which is putting together and holding together various actors in the food system that are pushing towards something resembling slightly more socially and ecologically appropriate and just food systems from a food system that is severely hostile to people experiencing marginality of any kind"* (P8).

- **Personal challenges**

For other actors, it is the lack of personal, creative, emotional and/or community support that prevents them from implementing some of the things they would like to. Some feel that there is too much resistance from the community, and they are considered as outcasts (P1-2-3-5) by their communities. Thus, actors deal with various emotional weigh downs (P2-3-4-5), pain (P2-5), and/or discrimination for being "*different*" (P2-3-5-6-8-9), "*unrealistic*" (P1-7) or *"young and of colour in an otherwise white and affluent world*" (P5-7-9). This challenge mainly stems from the belief that eating healthy and being conscious of where your food comes from is a "white" thing or that which educated and affluent people do, as one of the actors explained. However, she and others are hopeful that with time they can prove themselves to their communities as "*legitimate"* producers, processors and healthy food promoters (P3-4-6-9).

- **Access to resources**

Sometimes it is lack of access to resources like water and finding open-pollinated seed that is not chemically treated that is a challenge.
(P2): "*With the drought, water restrictions have been implemented. It is too expensive to use the borehole water because of the electricity charges incurred, and the dam is almost dry".*

Motives for work

Despite facing the above (and more) difficulties and working in such a competitive industry, several factors were identified as the incentives behind most of the work that the alternative actors do, why they are involved in the initiatives or movements that they are, and/or support the causes they do. For example, many of the actors are motivated to challenge and perhaps change the local food system or economy despite lack of (predominantly financial) resources and/or government support (P1-2-3-4-5-8-9-10).

Some would like to end social injustice (particularly within the food system) and the consequences of South Africa's history with apartheid: "*My work is about…historical justice for the poor– empowering them and turning over the previous imbalance in South Africa. I want to empower them"* (P3). Historically, South Africa was classified by race during the Apartheid regime where the minority white government enacted racially discriminatory laws that forcibly separated people based on their race. This resulted in differential access to land for agriculture between the races, and consequently, various food systems (or food value chains) and/or food realities for different ethnic groups (Ledger 2016, Markey 2017).

For example, currently food security rates are higher in White (88%), Asian/Indian (62%) and Coloured (60%) communities than they are in Black (35%) communities (Mbhenyane 2016). To cope with hunger, some households resort to food deprivation

as coping mechanisms, such as skipping some of the meals in a day, or eating foods that they do not like (but which are cheaper or more readily available) (Battersby 2011, Pereira 2014, Ledger 2016, Mbhenyane 2016). Many of the activists work with poor urban communities where such mechanisms are employed, and where fast (often unhealthy) foods, and food-related diseases such as stunting in children, obesity and malnutrition are rampant. It is thus important for many of the actors to advocate justice for the poor in their communities (P1-3-9) by providing them with healthier and more diverse food choices (P1-2-3-4-5-9-10), and impact the next generation (P1-2-4-9).

"*The injustices that are prevalent in the African food system, the hunger and poverty... that is not a norm. It should not be a norm, especially when South Africa feeds the whole world. Africans must not depend on (other) people's help – they must be self-dependent and do all it takes to help each other to survive. I am making a difference in my and the wider community. I am giving other people an option; inspiring them to be people of the soil (like I am). This includes growing their own food"* (P4).

"I am compelled to make a change in the context of all other social and environmental challenges that exist. I am aware of my privileged background, which compels me to want to equalize opportunities for all and make a social contribution. I have been given the opportunity to develop that into my work, and I encourage my employer to sensitize our clients" (P6).

However, the food movement is currently too divided to accomplish anything significant and ought to be united to *"build a vision for the future"* (P8-9). One of the actors (P8) lamented on how there is antagonism and distrust between the people involved in food organisations which results in many working alone not as a collective. Actors thus find it hard to suspend their conceptions and preconceived notions to work towards something common rather than dismiss each other offhand because of the differences in their approaches. Nonetheless, there are many goals and targets that emerged as common interests across the board of (alternative) food actors.

Future aspirations and goals of alternative food actors

Many of the food actors would like to attain financial stability (P3-4-5) so they can realise their dreams of healthier local communities. More specifically, aspirations include:

- to have a locally-owned, artisanal bakery (P3) or deli (P1) in every suburb, i.e. have more people eating healthy bread and foods, and more people benefit from making business out of processing healthy food options.
- cut out the middle man to reduce (end-product and process) costs (P2-10)
- supply consumers with the freshest produce at a reasonable price (P2-3-4-10)
- create an Agri-processing hub that produces healthy food, to build a sustainable model that works and can be replicated in other areas (P1)
- offer training so that others are equipped to eat healthy and nutritious food" (P2).
- develop good food-growing and processing techniques (P1).

Other aspirations include making healthy living sustainable and fashionable in poor communities (P2-3-4-5-7-8-9), and to establish a pipeline of information, culture and heritage for the next generation (P2-4-6-9), i.e. working with children and getting them interested in healthy eating from a young age. For example, some of the actors from Khayelitsha township run a project whereby they encourage young people to grow their own food. The actors give school children seed to start their own fruit and vegetable gardens on small patches at the back of their houses in pots and/or containers. They also share information on food production with the community, do garden assessments and consultations.

4.2.3 Key observations from the Pre-T-lab Survey

The pre-workshop survey conducted before the T-lab commenced indicated that participants were most interested to discuss issues in their work environment i.e. the alternative food system, sustainability issues, health and nutrition, and how they can intervene in the food system. They also wanted to learn, and network with others (see figure 4). These key words helped to frame the topics of discussion at the T-lab, and the events that took place.
The keywords also served as a guide for the researcher when conducting informal dialogues with participants and when collecting data during the post-workshop survey to determine whether the T-lab had met the participants' expectations or not.

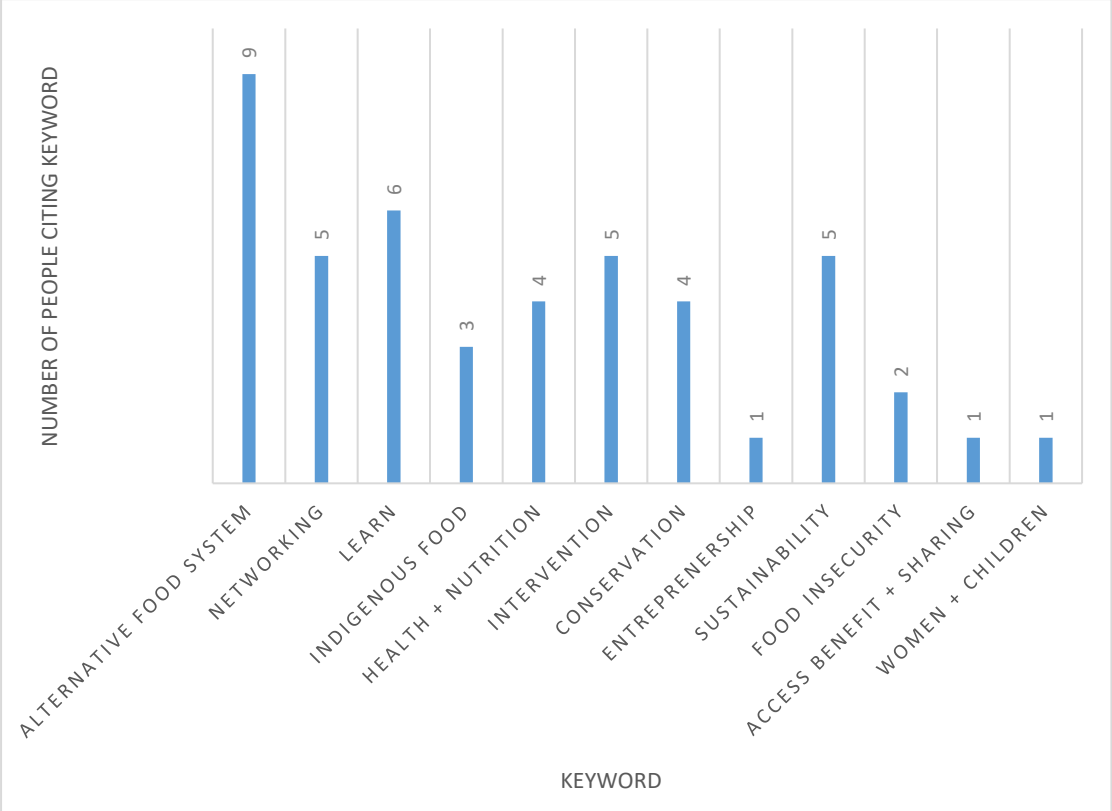

Figure 5 : Key themes of interest amongst the workshop participants based on the pre-workshop survey

4.3 The T-lab process: an evaluation

This section discusses the results that emerged from the T-lab, with a focus on the process itself, the actors that participated, and their evaluation of the process – both positive and negative reviews. As discussed earlier, the T-lab was conducted to serve as an intervention in the food system of the Western Cape, particularly Cape Town and Stellenbosch areas. The first T-lab was a collaboration between local facilitators from Stellenbosch University and those from Stockholm in Sweden.

4.3.1 Positive reviews of the T-lab process

There were mixed reviews of the (first) T-lab that had occurred in November of 2016. There were some positive reviews of the T-lab process, on aspects such as the opportunity to network with others within the same field, and the indigenous food theme. There were also some negative reviews of the same, and both reviews are highlighted in detail below.

Nature of T-lab process

For some participants, the T-lab met the expectations they had prior to attending (P3-4-7-9) and was a great academic and practitioner collaboration (P3). Many of these expectations are indicated under results of the pre-workshop survey, i.e. topics of discussion that participants highlighted as important to address.

"The T-lab was in line with the work I do so I really appreciated being there. I could integrate what was going on with the work that I do" (P7).

"I really like the fact that the academics and the practitioners came together. Sometimes I struggled a bit with the overly academic nature of things, but it was a good event. It was needed, and I appreciated it. I have made some new friends, reconnected with others and so that is positive" (P3).

Other participants felt that the T-lab process was a much-needed intervention in the food system (P3-6) and was an eye-opening and motivating process (P2-3-4-5-6-8-9-10). This was significant feedback on viability of the T-lab process (research question 1) as many of the participants are already (in one way or another) involved in food movements that seek to intervene the current food system. It suggests that the T-lab may have had an impact on participants in a way that other platforms (movements, campaigns…) have not.

"The T-lab process was eye-opening. I was encouraged that I am not alone – there are a lot more people longing for food revolution to take place. At times, I am tempted to quit and do something else that will make me more money. (But) they motivated me to continue farming to do something about the country/environment" (P2).

"*…Thinking about at what scale you can make a change is a waste of time for many people – it causes them to largely ignore the diversity, differences, marginal voices. For me change is much more localized, tangible, intimate gatherings and building a small alternative food cluster in this area and the small pockets I am involved in…so this, this was good to have all these Cape Town people in one room"* (P8).

Indigenous Food theme

Globally, largescale factors influence food availability, affordability, convenience and desirability of various foods and therefore determine the individual or community's food choices (Gordon et al. 2017). The T-lab process highlighted urban food gardens and the introduction of indigenous foods in people's diets as means of improving dietary quality and diversity, and ensuring resilience of food supplies. Amid nutrition transitions, and ecological change such as prolonged droughts and increased temperatures, i.e. unstable conditions for growing crops, there is need for innovation about how and where to source food. Indigenous plants grow naturally in the environment and their use as food can add diversity to and enhance the quality of diets (Kruger et al. 2015). This was also an attempt to promote engagement with local, edible foods and challenge the predetermined food choices that supermarkets, corporations and government policies offer.

One of the participants oversaw sourcing food for the T-lab and managed to source most of the ingredients locally. She later commented: "*I foraged for most of the wild ingredients, from (a community garden), and my own home garden. I prepared the infusions specifically for the T-lab, I brought the jam and pickles from my home stock, and (another participant) brought some of the indigenous ingredients from a (nearby) urban farm. I bought many of the vegetables from a small family owned veggie farm stall in (neighboring area). The game meat came from my local Spar*".

During the local tour, participants joined in harvesting, and asked questions on how to prepare, grow or store the produce. Most found this to be new and inspiring (P1-2-3-4-5-6-7-8-9).

Although not mandatory, group activities such as cooking together were a large part of the T-lab process. Some found these to be a good networking opportunity for the group as activists and players in the alternative food system (P1-2-3-4-5-6-7-8-9). Others enjoyed learning about new and/or alternative food sources and showed interest in incorporating more indigenous and local foods into their diet, growing medicinal plants (P9), incorporating local menu at their restaurant (P10), and focusing on indigenous food in their training programs (P1).

Some of the key ingredients used in food preparation were: wild rosemary, Dune spinach, *Kruipvygie, Sout Slaai, Waterblommetjies, Veldkool*, dune celery, wild garlic, and Kei Apple. A range of aromatic herbs were also used to make gin and cordial infusions.

The pictures below highlight some of the foods at the T-lab:

Picture 1: Herb- infused gin and cordial bottles on a table

Picture 2: Some edible indigenous plants that were used to make a salad

Picture 3: A bowl of salad made with some of the foraged herbs

Picture 4: A platter of locally sourced cheese and bread

Picture 5: Some of the bread from a local baker

4.3.2 Negative reviews of the T-lab process

Some of the participants expressed dissatisfaction with the T-lab process, including how the facilitators had handled the tensions in the room, the material presented (i.e. overly academic, lecture-like presentations), and that there were certain key people missing from the T-lab. This feedback was also directly linked to the first research question of whether the T-lab process was a viable intervention in the food system or not.

Expectations

Some of the actors were dissatisfied with the process, that it did not meet their expectations (i.e. their idea of what a T-lab would look like), and there was "*nothing new to learn*" (P5). Although many who cited this had not been very active at the T-lab and were some of the first to express their dissatisfaction during (informal) discussions at the T-lab, this was important feedback for facilitators to get and consider when designing the next T-lab. In addition, although it was crucial that the T-lab reflect as many interests of the people in the room as possible to help with their level of engagement or participation during the process, having an already defined T-lab structure (as was the case of the first T-lab) did not leave much room for this to happen.

(P4) "*Honestly, I have been to other things like it. Yes, the information was good, and I was happy to link with other people, expand my networks and make my circle bigger...but I do not think there was anything new about it".*

Others were dissatisfied with the material presented and considered the T-lab process as a waste of their time and an elitist idea (P1-5-10), claiming that transformation (i.e. change) within the food system could never happen in the "real world" i.e. outside of the academic circles or research realm.

Nature of T-lab process

The T-lab process was too long (P1) and did not address some participants areas of concern (P1-4-5-6-8). For example, some topics such as nutrition were not mentioned at all even if they had come up as one of the key words during the pre-workshop survey (P1). Although conflicting views or inputs would not have been reconciled, nor would all participants be satisfied, if participants were more involved then there would be some representation of their needs instead of those that were merely "imposed" on by facilitators. Research has shown that where citizens play an active role in the affairs of the community, the decisions made are more likely to be of benefit to the needs of the majority (Biggs et al. 2015). This is unlike situations where only the few people at the top make all the decisions for the rest of the community. Thus, it could be suggested that the T-lab would have yielded better results had participants been more involved in determining the T-lab structure.

That said, it must also be acknowledged that although community participation is vital, and these are the individual champions, innovators, change agents, or disruptors that understand the agency of the situation and are on the forefront in carrying out initiatives towards sustainability transitions, there was need for someone (i.e. facilitators) to "make the call and design the process accordingly" to address the

challenges within the food system, and motivate everyone else to make (or continue making) personal and systemic changes (Krige & Silber 2016, Pereira 2017).

There were concerns of not having government officials present in the room even if there was talk of changing policy (P5), as these are considered key stakeholders in policy making processes. Neither was there a tangible action plan that was conceived by the end of the workshop, as the T-lab had set out to do.

One of the participants even mentioned that they had not understood the terms that had been used during the discussion, but had not been confident enough to ask (P6). This was a direct contrast to the "safety" aspect of the T-lab space as a place where people can break through the discomfort and difference of opinion to have real and meaningful dialogue.

Other feedback included lack of symmetry in the group in terms of knowledge that was present within the room but was not honoured. Researchers were too focused on academic theories and not on ideating practical solutions (P1-2-3-5-6-8-9-10). *"…They* (facilitators) *expected us as practitioners to converse in academic language and fill up images of imagined steps of transition processes*" (P8).

The researchers in the room were also criticised for not taking risks but rather "playing it safe" and focusing on data collection instead of financially supporting the actors and projects that are performing well. **"***The divide between academics and practitioners needs to die. They give us a lot of invaluable data, but I feel they can do so much more rather than just pull all their resources into research…I want to see them take risks, but they are afraid of failure"* (P3)**.**

Facilitation and activities

The T-lab process was not run well and was considerably *"extractive"* and *"inappropriate"* (P7-8). The process is said to have fostered anxiety and lack of interest instead of helping the participants bond (P4-5-6-8-9). This criticism was mainly attributed to the noninteractive way the (first) T-lab was conducted, i.e. not implementing participant needs and feedback into the program.

"*I do not think the (T-lab) process was run well, the interest of research was from the outsiders* (i.e. visiting researchers) *and not aligned with the potential transformative process that could have taken place had it been facilitated properly"* (P7).

(P10): *"It was so political between the (local and visiting) academics and in turn this affected the whole process".*

Not all appreciated engaging with the local landscape as some found it to be a "*waste of time", "a bit much"* and "*too superficial to have any real meaning or impact on participants"* (P5-7-8). Initially, the learning journey and interaction with the local landscape had been designed as foundations of the T-lab process to introduce to and/or reacquaint participants with the local flora, fauna and livelihoods around them. This was to feed into driving the rest of the T-lab process and conversation towards ideating solutions to actual problems and challenges that participants and communities around them face.

Dealing with tensions

The tensions that arose within the groups were not well addressed (P5-7-6-9), and the T-lab process had "*only addressed the surface, not real issues that are causing food insecurity or problems in the food system*" (P10) i.e. nutrition (P1-3-8), stunting in children (P8) and the social economy (P7):

"*You cannot speak of transformation and not speak of humanity, of Ubuntu, of the social economy..."* (P7).

"*Considering that many children that are undernourished and food insecure are from households of farm workers and prone to stunting, any seemingly small effort goes a long way in the lives of these children***"** (P5).

Feedback from the interviews after the T-lab also indicated that the objectives of the T-lab were not made clear to participants from the very beginning and this lack of transparency made some participants to feel as if they were part of an experiment (P5-7-8-9-10). The presence of (foreign) facilitators implied that there was more to the T-lab than what participants were told (P5-6-8-9), and this increased the amount of tensions in the room (P8). In addition, the (foreign) facilitators did not show an understanding of the volatile nature and dynamics of the South African food scene. *"It was too much of a Western concept for me*" (P5). Thus, the process appeared to be *"extractive*" (P6-8) and this made participants to feel "*manipulated*" (P4-5-6-7-8-9). "*What do (they) know about growing up in a township, with no land, and sleeping on a hungry stomach? Why were they* (foreign researchers) *here? Was this an experiment?"* (P4). This critique was also followed with some recommendations going forwards, such as "*No* (foreign) *people in the room again. They interfere with the agenda. People could see right through it and could feel the tensions between the facilitator teams* (P8).

Consequently, this was crucial feedback considering that the T-lab process had been initiated to serve as an intervention in the local food context of the Western Cape. If enough participants were unable to identify with the process or material thereof as something that they could relate with or own and implement themselves, then it would follow that the T-lab had failed to achieve its primary purpose. Going into the second T-lab, this was treated with the utmost priority as the design team and facilitators sought to make the T-lab process as relevant and relatable as possible.

Indigenous food theme

As indicated earlier, indigenous foods were highlighted as a theme of the T-lab process, i.e. as an alternative food source. Mbhenyane (2016) describes indigenous crops as an alternative food source that can improve the quality of diets, nutrition and food security, especially for the poor as they grow readily in natural ecosystems. This was highlighted at the T-lab; however, some participants mistook this for presenting indigenous foods as a panacea for food insecurity. They felt that in real life that is "*impractical*" (P1-3-5) and indigenous foods are "*at best a supplement*" and "*not likely to integrate into transformation of a whole, messed up food system*" (P3-6-8-10).

Missing T-lab links

The T-lab design team had sent invitations to people from all over the "alternative" food industry, government and the private retail sector**.** Although within the room there was a good representation of the diversity of South Africa in terms of age, race, class and roles that they play, many of the actors in the room were middle aged, and from urban areas. Some of the feedback indicated that it would have been better to include more youth and elderly people in the T-lab process (P9) and to have a *"more inductive or abductive, than deductive process*" (P7) whereby participants would essentially determine the structure of the T-lab, and it would be a collaborative effort between academia and practitioners. There were also questions on how the T-lab was run and/or facilitated (P8-10), and these are discussed further on in this chapter.

4.3.4 Initiatives from the T-lab

Although the T-lab conducted in November of 2016 had set out to "construct an agreed-upon statement of intent or action points going forwards" (see appendix 1), this goal was not realised by the end of the process. In addition to contributing factors such as inappropriate facilitation skills, lack of a common vision, and immature social networks (Moore et al. 2015, also see chapter 2 on processes of transformation in social ecological systems), the tensions in the room between facilitation groups and participants, the somewhat rigid structure of the T-lab and/or the novelty of conducting a T-lab in a global southern context may have contributed to this failure. However, there were several initiatives, ideas and resolutions that emerged from the first T-lab. The study leading to this thesis followed up on these developments by means of semi-structured interviews to track whether they would mature further or be implemented following the T-lab process.

Pursuing new initiatives

T-labs as "deliberate innovative spaces for experimentation with new SES configurations and transformative pathways to sustainability" (Charli-Joseph under review) allow for niche-activities to develop and potentially get implemented. For example, one of the participants from the first T-lab had resolved to start donating or selling at a cheaper price some of his surplus (organic) produce, to enable more people access to fruit and vegetables (which are sometimes not readily available or are too expensive in less affluent neighbourhoods – Mbhenyane 2016). Currently, he donates his surplus produce to the Food bank, i.e. a service that "rescues" edible food from manufacturers and retailers, and redistributes it to feed thousands of hungry people each day (The Food Bank, Cape Town). He also donates some of the surplus to a nearby early childhood development (ECD) centre and/or sometimes charges them half price when they buy vegetables to ensure that the children have a balanced meal. He explained that the ECD only has a budget of R100 per week for fruit and vegetables, which is not enough to feed all the children for even one meal.

Another participant is still contemplating on whether he should write an open letter to corporate bread companies as he wished to, but he managed to plant an oven at a community garden from a connection he made at the T-lab with the young farmers who run the initiative. He also gave them a few (free) lessons on how to bake bread,

and shared some of his recipes to help them get started. Currently, the young farmers are experimenting with making different breads with herbs that they grow from their garden and teaching others in their community to bake their so called "township artisan bread". One of them expressed how they now have "a platform to speak about the struggles of bread in townships and re-introduce the old ways of baking bread".

The second T-lab had set out to establish an enduring "coalition for change" that "strategically engages opportunities for reflection and review, building towards disrupting the dominant system" (Appendix 5). Although the idea of a food charter emerged from the process, and there were many other ideas of collaboration and further engagement between the participants, this stated goal was not explicitly achieved. This could be attributed to the flexible way the facilitators had allowed for the process to be, thus allowing the T-lab to be emergent and led by the needs and interests of the participants.

Personal commitments

Many of the participants had left the T-lab with the intention to improve on their work (P1-2-3-5-6-7-8-9), or take up new challenges (P2-5-10). However only a few of the actors, not all, implemented some of these changes in their work. For example, one actor (P2) stated how he had started out his organic farming business solely to make money by targeting high-end consumers so that he would not have to sell at low prices. The T-lab process challenged him to think differently about his work and consider helping the poor people in his community. He now donates some of his surplus produce to enable more people to have healthy, nutritiously balanced meals.

One of the actors (P3) promised to donate an oven at a community garden hub in Khayelitsha township, which he did shortly after the T-lab. Other actors are putting more effort into processing food surpluses into consumables so that it does not go to waste (P8-9-10).

Collaboration

Many of the participants had the intention of collaborating with others they had met at the workshop (P1-2-3-4-5-6-7-8-9-10). At the time of the interviews, some had visited each other's place of work (P2-4-9), or had met up for coffee a few times (P5-7-8-9). However, many had not been able to meet up or work together due to time constraints and busy work schedules (P1-3-5-6-7-8).
Some of the collaborative efforts that were yet to be fulfilled included two chefs from a prestigious restaurant working together with an indigenous food innovator to incorporate a local menu at the restaurant.

Funding opportunities

From the interactions at the T-lab, one of the participants (P1) received funding to fulfil his dreams of collaborating with an indigenous food innovator to experiment with growing wild food. Two other participants secured (better) jobs through their T-lab connections (P2-10). One was employed as a sous chef in a high-end restaurant and another was promoted from student farmer to head farmer.

Finally, a research project initiated at the T-lab has moved forward, and some of the participants (P2-4-5-8) are involved in designing a community garden project that they wish to plant in a school plot in one of the townships in Cape Town and reconnect urban dwellers to the land.

4.4 Discussion and reflections

Earlier in this chapter, the values, motives and characteristics of an alternative food actor were highlighted to give more context to the people in the room, and the extent to which the global north and southern alternative food industries vary. This data also helps explain some of the implications that were incurred during the T-lab process, for example the tensions between the groups, and reception of the activities and presentations of the process. This discussion continues with some of the key learnings from the T-lab process, i.e. what worked or did not work by conducting T-labs in the manner that they were, with the people that were present, and the facilitation team and style that was implemented. These include the benefits of networking in smaller groups, and the importance of having a facilitation team that is aware of the system dynamics that people are dealing with.

4.4.1 Challenges of conducting T-labs in a Southern context

There were a few challenges that were incurred during the T-lab process, such as tension between facilitators and between participants, and the nature of the process. These are discussed in detail, as is the question of whether T-labs are only a Western concept and therefore not a fit for the local context.

Tension, tension, and more tension

There were many tensions that arose within the room. During the debrief session on the first night of the T-lab, issues of identity, gender, race, poverty, equality and equity of opportunities between different classes of people were raised by the participant group. One of the (local) facilitators was quick to acknowledge this, and steered the conversation so that these tensions were aired out. He allowed people to express themselves and connect through sharing their experiences and hearing what others had to say. By the end of the night, the atmosphere in the room had loosened and many lamented on how they had felt connected to other participants in the room. The follow-up study also indicated that many of the collaborations that emerged later in the process were initiated on this night as participants shared their goals, dreams and challenges.

There was also some discomfort between some of the participants. For example, one of them made a comment that seemed insensitive to some of the members of the room, who spoke up against what she had said. Later, when I interviewed her, she spoke against the “sensitivity” towards any suggestion that other people in the room (and in South Africa in general) are not hungry but have enough money to live luxuriously. As such, the T-lab process should not have assumed that everyone needs a transformation, but should have looked at how the two sides can work together in mutual benefit.

As mentioned earlier, the facilitation team consisted of local (CST and SAFL) and visiting (SRC) researchers. The local team had initiated the T-lab idea, determined who would be in the room, and had designed a loose guide for the T-lab that was building from and consolidating with earlier events with some of the participants, i.e. a learning journey. However, the visiting team had already conducted some T-labs before (in non-southern contexts) and so were somewhat in a position of power. They had different ideas on how to conduct the T-lab. As a result, tensions ensued between the facilitation team as the local researchers tried (quite unsuccessfully) to consolidate these two ideas, and navigate the power dynamics with the visiting team. Ultimately, they lost control over the process and the visiting team took charge. This tension translated into a T-lab process that leaned towards being more structured and theoretical, rather than practical and allowing feedback from participants to shape it, i.e. a nascent, context-sensitive and/or culturally appropriate process.

In retrospect, most of the grievances that participants brought against the T-lab process were only aired during the informal conversations I (or the local facilitators) had with individuals, or interviews that took place after the T-lab process. This could suggest that the T-lab space had not fully succeeded in being a safe, or "safe enough" space where people were free to openly air their views on how the T-lab process was being conducted. It could also suggest that being out in the "real-world" outside the safety of the T-lab enabled participants to reflect more objectively on the T-lab process. However, it could also be argued that the tensions that arose at the T-lab and the discussions thereafter on their discomfort may have encouraged deeper conversation between participants and facilitators, and somewhat led to the relative success of the T-lab.

Second chances

In the follow-up study that ensued after the first T-lab, results indicated that many of the food actors had not been pleased with the T-lab process. They cited uncertainty on the intents of the T-lab process, its significance on their work, and the relevance of having facilitators from a European context. Others expressed that the presentations and language used during the T-lab were overly theoretical in nature. When invitations for the second T-lab were sent out, some were unwilling to participate in another T-lab process. Others accepted the invitations, but with reservations. Ultimately, the second T-lab only had 22 participants in total (including myself and two local facilitators), with only 11 of the 35 participants from the first T-lab, and 11 new participants.

To address the concerns that had been raised, the second T-lab was only facilitated by the local researchers, who had a clearer understanding of the social and historical dynamics at play within the room and the local food system. In addition, facilitators started off the T-lab with clearly defined objectives, goals and intentions, and allowed feedback from the participants to shape the structure of the process, i.e. an emergent process. Overall, the process turned out to be much smoother than the first T-lab, and more relevant to the needs of the practitioners. Feedback also showed that participants felt that they were co-creators of the process and so were more eager to participate. This experience helped improve the understanding of what attributes to consider when conducting T-lab spaces in a southern context, and the importance of allowing the process to be emergent and sensitive to the spatial and contextual dynamics.

T-labs: A Western Concept?

As indicated earlier, the follow-up study after the T-lab indicated that the process had been overly academic, or advanced for some of the audience. For example, during one of the facilitated group discussions, the actors were divided into smaller groups to continue the discussion and fill in a chart, to show their understanding of how change is a result of connections, flow of information and resources, and how power dynamics are often at play. There was some confusion as to why they were doing this, and some asked if they could fill in the chart anyhow they pleased, instead of how they had been told to. Similarly, after a presentation on the "Three Horizons framework" (Hobcraft, 2015), the discussion that ensued afterwards suggested that some participants had not understood its purpose, or relevance to them. This atmosphere and attitude was different to other scenarios (i.e. the first night) where intense conversation about the "dominant" food system, the relevance of having (and being) alternatives in such a system, and the challenges that many face as small-scale food actors, even as human beings in i.e. a socially, economically, racially and ecologically unjust world had ensued. As this was something that they experience daily, and are aware of, people seemed more open to share their opinion, suggest new ideas, or disagree with someone else's comments. In addition, during "informal" sessions and interactions, over a shared meal or drink, participants seemed to be more relaxed, and keener to share their personal stories beyond "T-lab shoptalk".

As a platform that intended to connect academia with food actors, i.e. researchers and practitioners, and build a stronger alternative food network, perhaps more emphasis would have been placed on sharing practical information than learning theoretical concepts. For learning to occur in settings (such as a T-lab), society must first engage with the matters that concern them (Akkerman & Bakker, 2011). This suggests that participants are selective in what they choose to engage with, depending on whether it is a matter of interest/concern to them or not. Activities that encourage learning through creativity and reflection could have been emphasized some more, and the interests of the participants could have been better incorporated in the program. However, one could also hypothesize that the prevalent low levels of literacy in South Africa can affect people's receptivity of, or interest in complex concepts (Babbie & Mouton 2014). This should be highly considered when undertaking processes such as a T-lab.

4.4.2 Recommendations for conducting T-labs in a Global Southern context

From the observations during the T-labs and the discussion above, the following can be suggested as essential attributes to consider when conducting T-labs, especially in a global southern context:

Diversity

Bringing together a diverse grouping of people within the same system helps bring many perspectives in the room, which is useful for addressing complex challenges (Westley et al. 2015, Biggs et al. 2015). Networking connects people, allows trust to build between participants, and provides a platform in which different groups can exchange information – i.e. a knowledge pool for decision making and learning new practices (Olsson et al. 2006). However, with diversity comes different opinions and

worldviews, even among people within the same sector. As such, there are likely to be tensions within the group, and care must be taken to navigate and address these differences accordingly and not let them stifle the T-lab process. This calls for skilled facilitation as a vital component when running a lab (Westley et al. 2013, Ely & Marin 2017).

Care must be taken must be taken to establish an open and trusting (i.e. safe or "safe enough") space for the diverse grouping in the room to express themselves despite the level of discomfort that is inevitable when people gather.

Skilled and/or context-appropriate facilitation

Careful design and good facilitation skills are crucial aspects to conducting a T-lab (Pereira 2017), as these factors can influence how each T-lab unfolds. However, the process itself and the challenges being addressed are dynamic in nature. It is therefore important that the approach to T-labs be flexible enough to (constantly) adapt to the diversity and needs of participants, and complexity of challenge being addressed. Pereira et al. (2015: 6035) calls for a need in safe spaces to "foster reflexivity… about how sustainability problems are defined, who is doing the defining, and what are ultimately the main prescriptions for action".

For example, the alternative food actors, who are mainly practitioners, were eager to be part of the T-lab process that is stemming from an "academic/research" background – i.e. a willingness to learn and engage with people and ideas outside their field. However, some of them expressed concern over being led by facilitators who seemed to be unaware of the historical background and nature of the South African food system, but already had a structure or framework in place on how the process should flow. This may have contributed to even more of the tensions that were already in the room due to the delicate nature of the subject, preventing them from fully engaging in the process. It may therefore be more helpful (to participants and the process) to have a facilitation team that is aware and/or sympathetic of the context which people are coming from, and the nature of the system which is being addressed, particularly in that spatial area.

The results suggest that participants like to be more involved in the design of the T-lab process, as it gives them a sense of ownership over what emerges. In addition, when T-lab objectives are made clear right from the beginning and everyone is aware of what is going on, then participants are more willing to participate, even if not all interests in the room can be addressed.

Unstructured and informal interactions

Smaller group settings allowed the silent members of the group to be heard or to have a platform to voice their ideas (Ely & Marin 2017). Similarly, at the T-lab, smaller group discussions, cooking together, creative illustration of future food systems, tour guide, foraging for indigenous plants and debates seemed to be more effective at helping people communicate, and share interests and innovative ways of living and working. Having more practical, relevant and hands-on sessions and discussions rather than focusing on theoretical aspects also helped to foster a learning environment (Geels 2012). Some people were not comfortable to comment, ask

questions or participate in the facilitated discussions that were part of the formal workshop, but were comfortable do so in the smaller settings.

Cooking together also helped participants to connect in ways that the facilitated discussions and activities did not allow. The cook-off allowed the chefs and their teams to showcase their creative culinary skills, share different ways of preparing food, and use new ingredients. Many participants also expressed interest in the use of indigenous, local edibles as a nutritional diversity supplement to diets and as an alternative source of food. This suggests that it is often within the smaller group that relationships are strengthened, "extant beliefs and perceptions are questioned, and possible futures are contrasted", thus allowing for the exploration of "new and novel system configurations" (Olsson et al. 2006: 4).

4.5 Conclusions

This study set out to:

1. Determine the viability of a T-lab as a "safe enough" space or intervention in the food system that can build relations and strengthen the networks within the alternative food system, and serve as a platform for transformative processes through dialogue and coming up with solutions to the challenges participants face.
2. Track the impacts of networking in an alternative food industry in the Western Cape, specifically the Stellenbosch and Cape Town area.
3. Determine the durability of start-up alternative food initiatives arising from the T-lab.

Although the results of the study indicate there is potential for the initiatives from T-labs to accumulate and perhaps have an impact on the domain system, the study was not long enough to determine this durability over time, or to pinpoint how that would happen. However, in terms of the three key objectives listed above, the following can be concluded:

The T-lab set out as an intervention geared towards a more sustainable and food system that would challenge how food is produced, processed, consumed and distributed (Barber 2014, Stirling 2014, Faber & Drimie 2016). The process connected people from the Western Cape and empowered them to respond to complex challenges within the food system in a creative and significant manner (Westley *et al.* 2015). With challenges such as food insecurity, malnutrition, diet-related diseases rampant in the Western Cape, the T-lab served as a useful tool in preparing the system for change. With widening tensions in the dominant food regime, windows of opportunity are opening for an accumulation of such niche activities to influence the regime (Geels 2002) in a way that has not been possible before.

However, transformative spaces (such as T-labs) need further development to reach their potential (Olsson et al. 2017) to "juxtapose the old and the new, the technological and the social, and the political and the economic" (Westley 2013:6). After the T-lab, participants tend to go back to their lives "as per usual" (i.e. pre- T-lab), unless they have certain incentives to connect with others or follow up on their collaboration plans. This suggests a disconnect between the T-lab space and the

"outside world", especially if trust or a sense of leadership (i.e. Olsson et al. 2006, Olsson et al. 2017) has not developed to motivate them forward without being prompted to do so. Otherwise, the ideas, initiatives or "ways of thinking or doing that exist, at least in prototype form…" (Bennet et al. 2016: 442) that emerge during the T-lab process remain unexplored. Thus, it is essential that facilitators endeavor to conduct T-lab in a manner that is as close to real-life situation of participants as possible i.e. realism (Bergvall-Kåreborn et al. 2009). This can enable participants to easily transition or implement ideas and innovations from the T-lab into their everyday life and work.

Findings also show that it is more effective if facilitators allow the T-lab to be an emergent process informed by the needs and interests of the participants, i.e. getting them involved in formulating the agenda, goals and objectives of the T-lab. Instead of being a rigid structure or academic framework, participants are more likely to participate and contribute to the process they are involved in. They may also be more apt to finding sustainable and practical solutions to the challenges they face.

Chapter 5 - Conclusions

5.1 Introduction

Environmentally and socially unsustainable and unfavourable conditions associated with the current global food system point to the need for fundamental shifts within the food system, i.e. radical innovations towards more sustainable food futures. This study sought to determine whether a Transformation lab (T-lab) is a viable tool for intervention in the food system, specifically within the south African context, and how the potential impacts of such a process on participant small niche actors can be nurtured to create new food system trajectories. The study involved mutual learning and joint problem solving with participants who attended the T-lab and played a crucial role in framing the research process and outcomes – i.e., adopted a transdisciplinary approach (Scholz 2000:14).

This chapter presents a discussion of the overall findings of the study, framed around the two key research questions outlined in Chapter 1:

1. Can a T-lab serve as an intervention for food system transformation in the South African context?
2. How can the potential impacts of a process like a T-lab on participant small niche actors be nurtured to create new food trajectories?

5.2 Overall findings of the study

In terms of the two key research questions the study set out to pursue, the following can be concluded:

1. Can a T-lab serve as an intervention for food system transformation in the South African context?

The T-lab process in November 2016 was designed to connect alternative food system actors and proponents, and create bridges between academics and proponents to help re-imagine the ways in which food is produced, processed and consumed, and potentially to become more embedded, and strategically aligned to influence the dominant food system. The T-lab was also designed to serve as a tool that can recognize and address embedded unsustainable social, ecological and economic dynamics within the current food system that are (already, or potentially) showing undesirable consequences for people and the environment.

The T-lab managed to connect alternative food actors, and helped them re-imagine the food value chain, through group discussions, presentations and an envisioning exercise. However, the challenges within the food system are deeply embedded and typical of complex, wicked problems (Rittel &Webber 1973, FAO 2016, May 2017), and cannot be easily resolved. There is no panacea to alleviating food insecurity (Reed et al. 2017). Transformations to more sustainable trajectories likely require "systemic shifts in values and beliefs, patterns of social behaviour and multilevel governance and management regimes" (Olsson et al. 2014:1), as well as multilevel

and multiphase processes of action such as a combination of activities and innovations (Geels 2002, Westley et al. 2013, FAO 2016, Reed et al. 2017). While a T-lab can contribute to a much larger and longer-term process, it cannot by itself generate such a change (Olsson et al. 2017). T-labs can potentially serve as an intervention in some aspects of the (alternative) food system, however they must be accompanied by several other approaches and processes that target the whole food system if they are to prepare the food (or any) system for transformation – i.e. an integrated approach.

2. ***How can the potential impacts of a process like a T-lab on participating niche actors be nurtured to create new food trajectories?***

The T-labs served as an intervention by providing a platform for learning and sharing that enabled new ideas to emerge from the dynamic grouping of participants, and inform a statement of action points guiding the action of participants after the T-lab. Various initiatives were birthed, and new relationships and collaborations developed during the T-lab, including personal resolutions that people made for themselves, e.g. to include more indigenous food in their diets, buy locally, or to be more generous with their excess produce and give to those who cannot afford to buy from them.

The study results suggest that relationships and a strengthened network between the alternative food actors have potential to nurture the T-lab impacts into new food trajectories. However, this is dependent on whether the alternative food actors remain in close working relationships and continue being innovative, so that their niche activities can accumulate (Geels 2002). Until there is a window of opportunity (political, social…) for them to become more mainstream or exert more influence on the dominant food regime, they will remain at niche level (Dorado 2005, Olsson et al. 2014, Westley et al. 2015, Pereira 2016, Elyn & Marin 2017).

Trust and leadership are important characteristics in self-organising social processes (Olsson et al. 2014, Walker et al. 2004). The data collected after the T-lab shows that people did not necessarily meet as they had planned to, or always follow up on the collaboration plans that they had made. This suggests that engagement at a T-lab event alone may have failed to build trust between the alternative food players, or that there is no incentive for participants to take ownership of and honour the resolutions they made at the T-lab. This could hinder the progress of activities towards moving the system into new trajectories, even if a potential window of opportunity arises.

5.3 Critique of the study and its contributions

The T-lab process helped strengthen networks within the alternative food system and was, at least in part, a conducive environment for new collaborations to emerge. However, the results suggest that there were some areas that may have been overlooked, or could have been handled differently. These included the way tensions in the room were addressed, the language that was used (overly academic), who oversaw the facilitation process, and clarification of the T-lab objectives from the very beginning. Although participants had given input in the beginning stages of the T-lab through the pre-lab survey, there could have been more opportunities for them to shape the T-lab process (e.g. though discussions, activities) once they had a better idea of what it entailed.

In addition, the study was only conducted with actors from academia and the alternative food system. Although this represented diversity of stakeholders within the room, consideration could be made to include actors from both the dominant, and the alternative food system, and representatives from different sectors of society including government officials, policy makers, representatives from large food corporations, and medical/health personnel. This would create even more diversity in the room (of experiences, interests and innovations) hence allow process to examine challenges from different perspectives. A combination of stakeholder participation and transparency tends to yield more inclusive and resilient innovations than do cases of little to no engagement with different sectors of society (Drimie & Pereira, 2016).

Since the food system is affected by decisions made in various sectors of government, civil society and business corporations (Gordon et al. 2017), if more of these decision makers, influencers and policy makers are brought together in a room, there can be more coherence on how to resolve some of the issues that are rampant within the system (Lang 2017). It would also better legitimize the efforts of the T-lab outside the safe space, and allow T-lab to intervene in the larger system, as initiatives from a more diverse grouping would likely have more traction in the larger system. This critique informs some of the recommendations for future study.

5.4 Recommendations for further research

Based on the study, several future research avenues can be highlighted:

1. Conducting T-labs with a more diverse group of actors from both the dominant and alternative food systems (including social entrepreneurs, and non-governmental organisations). Although this might have created more even more tension in the room, it would have perhaps been more beneficial to have people from outside the alternative food system "niche" to offer new and different perspectives on addressing some of the challenges within the food system. The food system itself is influenced by so many factors and players from across the board, if it is to be challenged then it might be more effective to have representation from as many channels as possible.

2. This study proved to be too short to track some of the initiatives and innovations that emerged from the T-lab. A longer-term study on such innovations might provide more insight on how these culminate over time.

3. For the second T-lab, the facilitation team was more mindful of the socio, economic, political, ecological…context of the people with which the T-lab was being held. Thus, they were careful to tailor the T-lab design and process to the needs and interests of the participants. Although the second T-lab had structure, there was no set agenda other than to create a space for connections to happen (Pereira 2017). This proved to be more effective than having a rigid, academic framework that was more process-oriented than people-focused. It would thus be quite insightful and relevant to determine the extent to which (or whether) facilitation techniques for T-labs, specifically within contested and highly diverse contexts such as South Africa play a role on the outcome of the process.

4. It was established in this thesis that the food system is highly complex and that to address the challenges faced therein, there is need to employ multiple strategies or interventions at different levels. Thus, a study on what other social, economic, political and agronomic factors can be addressed together with the T-lab as an intervention in the food system would provide more insight on a more holistic approach.

5. As illustrated in the thesis, there was tension that arose between the facilitator and participant groups, some of which ensued from lack of clarity on what the agenda or intention of the T-lab was (particularly the first T-lab). There were questions on who should have determined the agenda of the T-lab, i.e. participant versus researcher. What is the role of each one in a T-lab process? Who determines these roles? Does one influence the other? If so, how?

6. Post T-lab: many of the initiatives, collaborative plans that developed at the T-lab were not realised once participants returned to their everyday jobs and life. Was there something that could have been done differently to enable initiatives to progress? If so – what, and when? Who takes ownership of the emerging innovations and resolutions? Who (and how do they) ensure that the process goes on outside the safety of the T-lab space?

5.5 Conclusions

Theory in action

There were several ways in which the T-labs served some of the functional roles that transformative spaces play, including providing a platform for learning, engagement and protection.
For example, engagement took many shapes at the T-lab, i.e. during group discussions, and activities such as preparing food together, creative illustration of future food systems, tour guide, foraging for edible indigenous foods.
These activities also helped to foster a learning environment, i.e. by highlighting the use of indigenous plants as alternative food source, sharing of stories and experiences, and through the presentations, debates and activities.

The T-lab also served as a "safe enough" space where practitioners and researchers converged to address challenging issues in the food system. Despite the tensions in the room, it was quite an achievement that the two sides worked together. In addition, one outcome of the second T-lab (Appendices 5&6) was that participants agreed to pool in their efforts and resources towards creating a food charter that can address some of the challenges in the Western Cape food system. Currently, the idea is still being developed by some of the members that have taken a lead on this project. As such, the T-lab is serving as a safe space to shield, nurture and empower this idea further before it can be introduced to/implemented in the larger society. This correlates with the idea of T-labs as "innovative spaces for experimentation with new SES configurations and transformative pathways to sustainability" (Charli-Joseph under review).

Finally, another key learning that emerged from the T-lab process was the role of researchers in transformative spaces. For example, the first T-lab was led by visiting researchers from Europe. Their approach was structured around the theoretical

concepts of T-labs, and not necessarily adapted to the South African context. This translated into a process that was not only inconsiderate of the social, political and economic dynamics that were present in the room, but one that fuelled frustrations because participants felt they did not have a say in the process.
The second T-lab was then conducted by local researchers who were more mindful of the volatile nature of the food system, and carefully considered the various social, economic and political dynamics at play within the room that needed to be addressed. They also allowed participants to co-create the process. This approach resulted into a more open, flexible and relevant process. This suggests that the approach that researchers use when conducting spaces such as T-labs has an impact on how the process unfolds, and how participants respond in transformative spaces.

A personal reflection

This study was an eye-opener for me of the nuances in research processes between academia and the society. As a middle-(wo)man and point of contact between the facilitators and research participants, I was in a position of both privilege and discomfort. The privilege came with having "insider information" from both sides, and being able to interact and connect with such a diverse grouping of people that I otherwise would not have had the honour to meet. Their stories inspired and challenged me on a personal level, and deepened my passion for research on transformative processes, especially within the food system. From the start they were not "participants" of a research project, rather people with faces, smiles, and voices that soon became familiar.

The discomfort came in various forms, whenever something went wrong, or when someone felt they needed to "vent" about how if they had known what the process entailed, they would not have attended. I had sent the invitations to both T-labs and was invested in both processes, and I felt the weight of responsibility to fix things and ensure that everyone was comfortable. This experience enriched the research process, my people skills and level of maturity, and I was glad to be a part of this research project. At times, however, this also took its toll on me, because ultimately there was no distinguishing between the private individual from the researcher role that I had taken on. I was both and neither, too, and often could not help but get an overwhelming sense that in some ways, I was letting these people down.

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Appendices

Appendix 1: Description of first T-lab

A T-lab to explore alternative food Systems in the Western Cape

Researchers at the Centre for Complex Systems in Transition (CST) of the University of Stellenbosch and the Southern Africa Food Lab (SAFL) are hosting a three-day Transformation –lab (T-lab) from the 27-30th of November at Fynbos Retreat - Grootbos Nature Reserve.
The T-Lab serves as a platform for dialogue to harness the potential for food system transformation in the broader Cape Metropolitan area. This event will bring together a diverse group of actors that are actively engaged in creating alternatives in the food industry, such as restaurateurs and chefs, producers, informal food traders, academics and initiatives. A transformative process values actor interaction. By connecting alternative food system actors and proponents, the t-lab will create bridges, by for example linking chefs to producers, restaurateurs to informal traders and academics to actual work on the ground. This connection and process is an opportunity to re-imagine the ways in which food is produced, processed and consumed and potentially to become more embedded, sustainable and strategically aligned to influence the dominant food system.

The aim of the event is to seek to answer the following questions:

- What is the viability of linking alternative food actors into the mainstream without losing the integrity that makes it small-scale/alternative?

- How do we build relationships that enable alternative food systems to grow?

Within the current food system, many unsustainable social, ecological and economic dynamics are embedded that are already showing undesirable consequences for people and the environment. The T-lab, by bringing together various stakeholders and actors from different backgrounds and sectors of society, can serve as a tool to recognize and address those consequences. As each initiative is empowered with information, participants can come out more inspired and learn from practices that implemented by others that they could adapt into their own field. New ideas are bound to arise out of discussions within such a dynamic grouping that can inform a statement of action points. These will be framed as a resolution that can guide the action of participants going forward from the time of the T-lab.
Other expected outcomes are to build relations and strengthen the networks within the room. Although most actors have similar goals -to grow an alternative food system- they are often working in isolation from each other. By bringing them in the same space, the T-lab could be a chance for them to get familiar with each other and recognize this common ground.
The T-lab also aims to serve as a platform for transformative processes which can result in the alternative food system becoming more mainstream or exerting more influence in the dominant food system. This can be done through dialogue and coming up with solutions to the challenges participants face, thereby strengthening them and enabling them to navigate them as best as possible.
Transformation requires facilitation and engagement to be effective, and by bringing together various actors in the “alternative” food system such as chefs, informal food

vendors, academics and producers in a safe space where they can engage in activities, dialogue and build networks, the event is an enabling environment that can foster such a transformative process in the food industry.

The event/T-lab has been developed with the theory of change in mind, and has carefully been constructed to address the two questions. These activities include:

- A learning journey en-route to the venue to help determine what is wrong with the current/dominant food system, and what about this system can be connected to the alternative food system.
- Foraging and a guided tour of Grootbos Nature reserve to (re)connect people with the local nature, and to learn about the different wild foods in the area.
- Contextualising and framing of the social-ecological system dynamics at play
- Surfacing of tensions that people in the room are facing
- Visioning of the innovation and what role/impact it can play in the system transformation
- Constructing an agreed-upon statement of intent or action points going forwards.

There will also be fun activities such as a cook-off between some of the amazing chefs we are hosting, a movie, and helping make food.

Appendix 2: Pre-T-lab Survey November 2016

Hello, my name is Olive Zgambo. I am a research assistant at the Centre for Complex Systems in Transition at the University of Stellenbosch. I am also a prospective master's student studying the transformative potential of alternative food systems. I have been kindly invited to conduct this quick survey before the t-lab event which is being hosted by the Centre for Complex Systems in Transition (CST) and the Southern African Food Lab (SAFL) from the 27-30th of November 2016. I will be observing the workshop as it happens to get a sense of how the workshop is structured, how participants engage with it, and how it might encourage learning. I am very interested in finding out about what you learn in the workshop, or what relationships you build from there, and would be very grateful if we could arrange to meet in the weeks/months following the workshop, to chat about what you learned from it and how it has potentially impacted your work.
This short survey is designed to help me, the coordinators of the workshop, and you, yourself to come to the workshop with a clear understanding of your expectations and aspirations for what you want to get out of it. The survey should only take around 15 minutes to complete and consists of 5 open-ended questions about you, your reasons for attending the workshop and what you expect the outcomes will be.
The information you choose to provide in the survey is confidential and will be accessed only by me, my research supervisors and the organisers of the workshop.
Thank you very much for your time and effort in taking part in this survey!

Name:
Organisation(s):

May I contact you after the workshop to chat about what you learned? Yes/No

If 'Yes' please provide details through which I may get in touch:

Telephone number:

Email address:

1) What activities are you involved in within the South Africa's food system?

2) What are the reasons you are interested in attending this workshop?

3) What do you expect the benefits of the workshop to be?

4) What topics do you think are important to consider in imagining the future of the South Africa food system and why?

5) What do you think are the important intervention points to create change in the Western Cape food system? Why?

Appendix 3: Post-T-lab Survey

Thank you so much for participating in the Transformation Lab (T-Lab) on alternative visions of the food system in the Western Cape hosted by researchers at the Centre for Complex Systems in Transition (CST) in collaboration with the Southern Africa Food Lab (SAFL).
Please may you take a few minutes to reflect on your experience at this event by answering the few questions below? The information you choose to provide in the survey is confidential and will be accessed only by me, my research supervisors and the organisers of the workshop.

1. Do you feel that the T-lab has improved your understanding of the alternative food system of South Africa?

   In what way was it useful? Or why was it not useful?

2. Do you think the workshop was useful for you in your work? (Tick the most applicable)
   Very much
   Much
   Some
   Not at all

   In what way was it useful? Or why was it not useful?

3. What was new and/or exciting for you during the process of the workshop?

4. What would have been useful for you to focus on?

5. Do you think the workshop will influence the way you work or relate with others in the field?
   Yes
   No

   In what ways will it influence your work? Or why will it not influence your work?

6. What action points will you implement in your work as a result of the T-lab?

Thank you very much for your time and effort in taking part in this survey.

Appendix 4: Questionnaire for semi-structured interviews

Area of focus	Question
Role	1. What activities are you involved in within South Africa's food system?
Motivation / intrinsic values	2. What is the motivation for your work? 3. What five characteristics/core beliefs would you say define your work? 4. Are you explicit (i.e. you make known) about these principles to your audience/customers?
Goals	5. What do you want/hope to achieve with your initiative/organization?
Area of influence	6. Are you addressing any sustainability or social injustice and inequality issues in your work? Name them, and how are you…? 7. Are you involved with your local community in any way? In what ways/why not?
T-lab process	8. Was there anything unusual about the T-lab? Please explain how/why not? 9. Would you participate in similar events in the future? Why/why not?
Collaboration with T-lab participants	10. Have you worked with any of the people from the T-lab? In what ways? Why not?
Potential personal/systemic transformation	11. Did the T-lab process challenge your worldviews/values/beliefs about food? 12. What was it about the process (i.e. session/conversation/idea/tour) that facilitated this shift? How/why? 13. Did this affect your way of thinking and doing? 14. Will this influence you and your work? 15. Would you need to change something about yourself (thinking in a new way/creating awareness) for you to contribute to the South African food transformation? 16. What would those changes be?
Potential challenges to transformation	17. What conditions would hinder you from being part of the transformation?

	18. From the core characteristics, you mentioned earlier, what would you say are the factors (social, economic or environmental) that challenge you the most?
Addressing challenges	19. How do you address these challenges? 20. Do these methods (of addressing challenges) work?
Collaboration	21. Do you collaborate with other players in the food industry? Who/why? 22. How do these collaborations strengthen/challenge your work? 23. What do you think can be done to improve these relationships?

Appendix 5: Design of 2nd T-Lab

The T-Lab facilitated by the Centre for Complex Systems in Transition (CST) and the Southern Africa Food Lab (Food Lab) is a multi-actor innovation process that addresses pressing issues in a local food system, situated in the Cape Metropole, by aiming to better understand them, build coalitions of change, generate ideas and commitment, and test these ideas on the ground.

Following a clear sequence, the T-Lab has consisted of initial research that fed into a conceptual framework that allowed researchers to connect with practitioners, a multi-pronged learning journey involving a cross-section of food system actors in Stellenbosch, a "T-Lab" or retreat at Grootbos Nature Reserve involving a group of specially selected participants to build networks, ideas and commitment, and a consolidation "Lab" to refine emergent ideas and to strengthen the coalition of change, so as to enable these ideas to unfold on the ground.

The T-Lab has been a "safe social space" for participants from across food systems particularly in the Western Cape with an interest or stake in these systems. As these food systems are so complex, with a myriad of actors and underlying issues and outcomes, the T-Lab has built on a systems approach that integrates thinking, reviewing and reflecting, and doing. Concrete coalitions and ideas are translated into action through building relationships and commitment for the actors to drive change.

The goal of the 2nd T-Lab Consolidation Workshop, is to further develop and strengthen the trust between participants in the emerging coalition of change that will enable them to continue to define and implement breakthrough solutions. The Grootbos retreat resulted in some ideas and action pivoting on the intersections between niche, artisanal and fledgling projects intended to provide alternatives to the dominant food system so as to contribute to its disruption over tie. The Consolidation workshop builds and strengthens on this.

The Consolidation Workshop will be based on three distinct movements that will unfold over two days in late July 2017.

Movement One: Sensing the System

- Introducing ourselves and our expectations
- Review and reflection on what has happened since the retreat
- Taking stock: what of value has emerged?
- Stimulating new ideas/ perspectives: what is the dominant system?
  - Speaker (Prof. Julian May)
  - Video/ film (Olive to identify and source)
- Dialogue: how can we change this system?

Movement Two: Letting Go (old ways of working)

- Individual reflection/ time in "ideas room":
  - Why is what I am doing important?
  - How does it provide an alternative?
  - What is the change I am seeking?
  - How can I make what works stronger?

    - What should I let go?
- Presentation of key insights
- Group dialogue about what is emerging

Movement Three: Letting Come (emerging innovation)

- Presentation of Future Anthropocene Scenarios (Laura)
- Small team work to crystallise:
    - What is required for us to anticipate, adapt and thrive in this system?
    - What is needed from me individually? How can I link this with others?
    - What will we do? How will we do it?

Two facilities will be available to support participants immerse themselves into activities.

"The Ideas Room"

This is a physical space available to all participants at any time for deeper reflection. It consists of adequate space with flip chart paper covering at least one entire wall with coloured pens and wax crayons at hand; a tray with clay and water; a box of mixed Lego and building blocks; a tray with small containers, sand, compost, water and seeds (from Ethical Coop); an array of coloured paper, card, pens, pencils, postage cards and glue; three or four posters/ images from Luke's "Food Revolutions Exhibition / Gwen's Ethiopian Food Systems Exhibition posted on walls; a laptop with three or four short videos on innovation in the food system with index card describing each; amongst other items that will enable participants to immerse into the questions they face.

"Preparing Food"

Working with an indigenous food innovator, we will prepare and provide food collectively in a way that builds an understanding of combining different foods, flavours and textures through experimentation and eating.

A Coalition for Change

A key outcome of the Consolidation Workshop could be the establishment of an enduring "coalition for change" that strategically engages opportunities for reflection and review, building towards disrupting the dominant system. Gradually, this communicative activity may build the emergence of new collaborations between actors and organisations working toward common goals and deploying their resources in support of novel endeavours.
If this is desired, what will be required to establish it and maintain its work?
An example is the transformation of Chile's coastal marine resources, in which an alternative framework for resource management was cultivated by a shadow network of scientists and activists, but provided a platform for a radical shift from individual to community fishing regimes when a political upheaval, i.e. the end of the Pinochet regime, provided a release of resources (Gelchich et al 2010).

Appendix 6: T-lab 2 process

Process	Rationale	Outcome/Reflection of process
Co-design workshop	This was a pre-lab activity that brought together some of the key participants from the first T-lab and the facilitation team in a brief co-design workshop.	This was done to ensure that the process was not overly "academic" and that the views and expectations of participants were incorporated from the beginning.
Dealing with conflict/ Introductions	Feedback from the first T-lab indicated participants were uncertain on the T-lab concept, and the relevance of having some facilitators from a European context. There were also concerns on the objectives of the T-lab as not clearly stipulated, the theoretical nature of the presentations and the academic language that was used during the process. Facilitators addressed all these concerns by starting off the second T-lab with clearly objectives, goals and intentions, and allowed the participants to shape the structure of the process.	An opening speech from the facilitators outlining the objectives of the T-lab set the tone for the rest of the process. Participants also introduced themselves to the group and expressed their expectations of the process. Expectations included to build networks, share, learn and discuss issues challenging the food system.
Explaining the T-Lab concept	This brief session was a recap of the last T-lab process: strengths and weaknesses, and some of the results that transpired from there. These were then linked to the second T-lab – how the two are a continued process.	This was to highlight the relationship between the two T-labs, and to highlight that it was a continued process of engagement.
Presentation	As in the previous T-lab, the Three Horizons framework was presented – i.e. a way of working with transformational change from the present to the future.	This was done so that participants understand how change occurs, and what roles they can take as alternative food system actors.

Physical activity and reflection	These exercises challenged participants to rethink their perceptions of extreme cold or heat, and their mind and body coordination.	Exercises were a practical take on the reflections that would follow- i.e. letting go of some things to allow new ways of doing to come in. Reflections were designed to aid participants to acknowledge what is working for them and what is not, and be able to part with what has become redundant.
Provocation and discussion	This was on the "complex, wicked and impure" nature of food and the food system. Afterwards participants asked questions and discussed ideas on what they can do about it.	This served to help participants think of the food system in a more holistic way, on the complexity of the food system, and to illicit creative ideas of dealing with it in their capacity as alternatives.
Discussion	In the previous sessions they had let go of what had not been working, now it was time to reflect on what how they could let innovation emerge.	Participants used a variety of materials i.e. play clay, building blocks, coloured paper, pens, seeds, glitter and balloons to present their reflections to the group.
Cooking together	Although indigenous foods were not as elaborate as last time, there was still a focus on local foods as most of it was sourced from local producers and retailers, and as donations from some of the participants.	As was the case in the first T-lab, participants worked together to prepare the meals, set up eating spaces, and clean up afterwards. This allowed people to engage with each other, share food stories, recipes and food sources around the fire or over a meal.
Action plan	By the end of the process, participants had resolved to do a few things differently.	This included building a food charter, collaborating with one another on different projects and research, and joining campaign.

Appendix 7: Excerpts from personal notes and reflections of the T-lab

28/11/16

It is Monday morning and we are headed out for a guided tour of the landscape with the rest of the group. In my mind, this is the literal meaning of a "learning journey"- getting a sense of the land we are in, touching, feeling, smelling and becoming one with nature around us. In the bus en-route here yesterday I was not sure people really got the message of what we were supposed to do, as some were still sleeping, and others carried on with their conversation even after the facilitator spoke. Today I have noticed a lot more excitement, and I feel like a spy or a fly on the wall as I listen in on people's conversations. Am I merely eavesdropping or is this part of the "observation" method I listed as part of the research? A few days ago, I had a sit-down with a Ph.D. candidate on scenarios and visioning that helped me to have a better clue of what observation is- i.e. looking out and carefully keeping record of people's body language, the unsaid words that in most cases give more feedback than what they say out loud.

Back to the moment. As we were being shown around the place, a few things stuck with me. Firstly, that the value of land depends on what you can do with it. It concerned me a little that the land at Masakhanye is still owned by government, and not the people that are using it. The program facilitator and one of the farmers I interviewed seemed happy and grateful that they get to use the land- which is great, I agree- but the more they make the soil healthier and equip it for growing vegetables, the higher its value will go up. I thought of mainly two things - what will happen when this land is rich and fertile - will the government still be willing to let them access it for free? Won't people who have high/influential positions in government be eyeing this project and waiting for a chance to get their hands on it for the sake of profit-making? I want to remain optimistic and think of only the best possible scenarios, but power dynamics usually come into play at some point and maybe those two questions are worth considering.

In the reflections session after the tour, Facilitator 1 talked of 5 categories that the groups would then discuss and try to categorise their stories in. The 5 were; roles and routines, power, resource flows, groups and networks, and values and meanings. Even after participant 1 told her story, I noticed there was some confusion as to what fit where and how the stories would "fit" into those 5. I sat in a group with three participants who struggled to fit their stories into the categories and eventually decided to just share their stories and not be limited by the categories. I am unsure of why these specific ones were important, or what the aim was, and from the feedback I got from the groups I interacted with, not many got the task clearly either. Surprisingly enough, no one brought it up as a question.

I did pick up some interesting stories in my "spying" though. Participant 2 was a journalist before he became a chef. He needed a plan B when things did not work out as he had hoped - luckily, he had had some culinary training initially that he could fall back on. As a business strategy and out of interest to represent the coastal area that he lives in, he decided to serve local, indigenous foods at his restaurant. He only serves a maximum of 20 people a day, as a way of ensuring that he remains accountable and does not exploit the resources he relied on to make the dishes. His customers are high-end, and he makes a substantial amount of money out of the restaurant, which made me happy because usually the words "local", "indigenous" and "foraging" are associated with free, cheap and bad quality, and there is some discrimination attached

to it especially in urbanizing cultures. The other extreme is that it is only associated with rich, high-end consumers.
I also joined in on the solidarity conversation between two participants. These two said that given a chance, solidarity could change the world drastically, and challenge the prominent, “Western” way of doing things. I thought, that there are people in this workshop who could actually give this a test. There are farmers (producers), chefs, processors and retailers in the same space, that rely on the exchange of farm produce at one point or another of their "value chain". Surely there must be a way in which they can work together; if not to challenge the prominent way of doing things, then to simply make work easier for and promote each other's efforts.

29/11/16

It is the morning of the 3rd day of the T-lab and I am feeling a bit more enthusiastic about life and this process in general. It's only dawning on me that this is the result of all that effort over the past few months. I wondered yesterday if we chose the right people to participate, if this really is what the vision was, and if not, how far we have strayed from it. I have noticed that the core team have been spending a lot of time huddling up and discussing the process, or at least I think so. I want to be a fly on their wall! Maybe part of engaging in a T-lab is being flexible enough to evolve and adapt to status quo and whatever is going on now. Maybe having a structure is as important as not having one.
Facilitator 2 started today by saying we should allow difficult conversations to happen as that is how we will shift the food system, if at all we can shift the system. He further said that there needs to be an alternative that provides choice, and allows individuals i.e. consumers to make decisions of what they want to eat, when, from where, and how. The way to do this is to connect people, like we are connecting now I suppose.

I noticed people taking notes and engaging more than they have the last few days when facilitator 3 was talking. Her message was clear, relevant and packed with information yet palatable. It also sparked a lot of conversation, which I noticed later when I was moving around the groups being a wall fly. What people wanted to discuss was the size of the dots that she allocated. That surprised me and made me wonder what it is that people are getting out of this process that I have not considered or observed. Nonetheless, the modeling process was fun for most people and I was pleased with the enthusiasm, creativity and overall interaction. It was interesting to note the gender and power dynamics at play as participants 1-4 dominated in their group work. Participants 5-8 were surprisingly creative and comfortable enough to share their thoughts – such remarkable transformation from how quiet they were just yesterday. I should ask what criteria facilitator 4 used when allocating them in groups, it seems to be working so well and bringing out the best in people.

Participant 6 and her group had a conversation about bringing spirituality to what we do, and incorporating it in the why we do anything, especially since food is such an intimate and complex thing. People tend to get emotional when talking about their food experiences and what they eat, etc., and that made me reflect on the “safe space” atmosphere that the T-lab concept is hinged on. Maybe we (and by that, I mean the facilitators) got that part right, if people feel safe enough to share their beliefs,

experiences, intellect, ideas and personal stories with others that are for the most part strangers.

I was surprised by the reaction to Participant 7 groups “pretty” model, and how some people thought it should rather be messy and more complex. That makes sense since the food system we are in is messy and complex and not as pretty looking as we want it to be, but I liked their thinking that things don't always have to be messy for them to work. Many people experience a simple and straightforward food chain whether they grow their own fruits and vegetables, or buy from a local farmer or a local store or even a chain store. Personally, I was not aware of all the drama behind the food I used to buy or eat before I got interested in the food system, and that is only when things got complicated. Simple is attractive, it is easy, and I feel that is why for many, it is easier to simply walk up to a store and buy whatever they need to buy because that is convenient, and they don't have to think about what they're actually doing. I had talked to participant 7 earlier where she told me her dream is to open a “convenient sustainable food store”. She admits it is a far-fetched dream, but would like to sell organic food and everyday basics that are locally grown or purchased, with a transparent and short value chain. She is working on something similar now at work where they sell organic, grain-fed eggs and chicken, beef, pork and up to 49 agro-processed food products. That for me is a story of hope and encouragement that there are people thinking about the planet and doing what they can to provide alternative ways of producing, processing, retailing and consuming food. It struck me even more when people were reflecting on what they will do after the T-lab, the connections that have been formed or strengthened. I am excited to see an oven built in Khayelitsha, and the many collaborations that will happen. It all comes down to relationships, and I feel that is a good way to start as we slowly make our way out of the current food system.